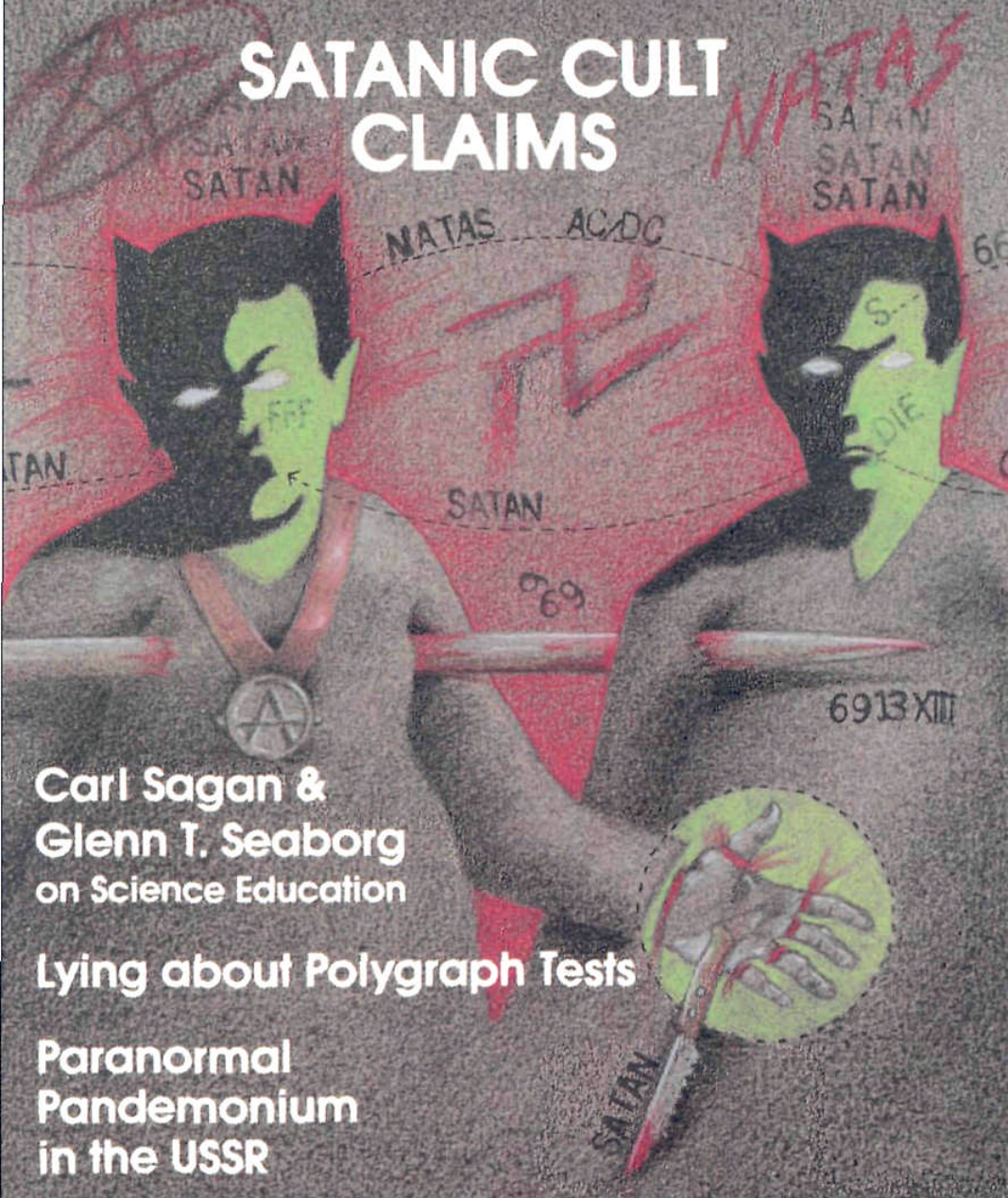
SKEPTICAL INQUIRER

Vol. 14, No. 3 / Spring 1990 $6.25

SATANIC CULT CLAIMS



Carl Sagan & Glenn T. Seaborg on Science Education

Lying about Polygraph Tests

Paranormal Pandemonium in the USSR

Published by the Committee for the Scientific Investigation of Claims of the Paranormal

THE SKEPTICAL INQUIRER is the official journal of the Committee for the Scientific Investigation of Claims of the Paranormal.

Editor Kendrick Frazier.
Editorial Board James E. Alcock, Martin Gardner, Ray Hyman, Philip J. Klass, Paul Kurtz, James Randi.
Consulting Editors Isaac Asimov, William Sims Bainbridge, John R. Cole, Kenneth L. Feder, C. E. M. Hansel, E. C. Krupp, David F. Marks, Andrew Neher, James E. Oberg, Robert Sheaffer, Steven N. Shore.
Managing Editor Doris Hawley Doyle.
Business Manager Mary Rose Hays.
Assistant Editor Andrea Szalanski. **Art** Valerie Ferenti-Cognetto.
Chief Data Officer Richard Seymour. **Computer Assistant** Michael Cione.
Typesetting Paul E. Loynes. **Audio Technician** Vance Vigrass. **Librarian,** Ranjit Sandhu.
Staff Leland Harrington, Lynda Harwood (Asst. Public Relations Director), Sandra Lesniak, Alfreda Pidgeon, Kathy Reeves.
Cartoonist Rob Pudim.

The Committee for the Scientific Investigation of Claims of the Paranormal

Paul Kurtz, Chairman; philosopher, State University of New York at Buffalo.
Lee Nisbet, Special Projects Director.
Barry Karr, Executive Director and Public Relations Director.

Fellows of the Committee (partial list)

James E. Alcock, psychologist, York Univ., Toronto; **Eduardo Amaldi,** physicist, University of Rome, Italy; **Isaac Asimov,** biochemist, author; **Irving Biederman,** psychologist, University of Minnesota; **Susan Blackmore,** psychologist, Brain Perception Laboratory, University of Bristol, England; **Henri Broch,** physicist, University of Nice, France; **Mario Bunge,** philosopher, McGill University; **John R. Cole,** anthropologist, Institute for the Study of Human Issues; **F. H. C. Crick,** biophysicist, Salk Institute for Biological Studies, La Jolla, Calif.; **L. Sprague de Camp,** author, engineer; **Bernard Dixon,** science writer, London, U.K.: **Paul Edwards,** philosopher, Editor, *Encyclopedia of Philosophy;* **Antony Flew,** philosopher, Reading Univ., U.K.; **Andrew Fraknoi,** astronomer, executive officer, Astronomical Society of the Pacific; editor of *Mercury;* **Kendrick Frazier,** science writer, Editor, THE SKEPTICAL INQUIRER; **Yves Galifret,** Exec. Secretary, l'Union Rationaliste; **Martin Gardner,** author, critic; **Murray Gell-Mann,** professor of physics, California Institute of Technology; **Henry Gordon,** magician, columnist, broadcaster, Toronto; **Stephen Jay Gould,** Museum of Comparative Zoology, Harvard Univ.; **C. E. M. Hansel,** psychologist, Univ. of Wales; **Al Hibbs,** scientist, Jet Propulsion Laboratory; **Douglas Hofstadter,** professor of human understanding and cognitive science, Indiana University; **Ray Hyman,** psychologist, Univ. of Oregon; **Leon Jaroff,** sciences editor, *Time;* **Lawrence Jerome,** science writer, engineer; **Philip J. Klass,** science writer, engineer; **Marvin Kohl,** philosopher, SUNY College at Fredonia; **Edwin C. Krupp,** astronomer, director, Griffith Observatory; **Paul Kurtz,** chairman, CSICOP, Buffalo, N.Y.; **Lawrence Kusche,** science writer; **Paul MacCready,** scientist/engineer, AeroVironment, Inc., Monrovia, Calif.; **David Marks,** psychologist, Middlesex Polytech, England; **David Morrison,** space scientist, NASA Ames Research Center; **H. Narasimhaiah,** physicist, president, Bangalore Science Forum, India; **Dorothy Nelkin,** sociologist, Cornell University. **Joe Nickell,** author, technical writing instructor, University of Kentucky; **Lee Nisbet,** philosopher, Medaille College; **James E. Oberg,** science writer; **John Paulos,** mathematician, Temple University; **Mark Plummer,** lawyer, Australia; **W. V. Quine,** philosopher, Harvard Univ.; **James Randi,** magician, author; **Graham Reed,** psychologist, York Univ., Toronto; **Milton Rosenberg,** psychologist, University of Chicago; **Carl Sagan,** astronomer, Cornell Univ.; **Evry Schatzman,** President, French Physics Association; **Eugenie Scott,** physical anthropologist, executive director, National Center for Science Education, Inc.; **Thomas A. Sebeok,** anthropologist, linguist, Indiana University; **Robert Sheaffer,** science writer; **B. F. Skinner,** psychologist, Harvard Univ.; **Dick Smith,** film producer, publisher, Terrey Hills, N.S.W., Australia; **Robert Steiner,** magician, author, El Cerrito, California; **Stephen Toulmin,** professor of philosophy, Northwestern Univ.; **Marvin Zelen,** statistician, Harvard Univ. (Affiliations given for identification only.)

Manuscripts, letters, books for review, and editorial inquiries should be addressed to Kendrick Frazier, Editor, THE SKEPTICAL INQUIRER, 3025 Palo Alto Dr., N.E., Albuquerque, NM 87111.

Subscriptions, change of address, and advertising should be addressed to: THE SKEPTICAL INQUIRER, Box 229, Buffalo, NY 14215-0229. Old address as well as new are necessary for change of subscriber's address, with six weeks advance notice. Subscribers to THE SKEPTICAL INQUIRER may not speak on behalf of CSICOP or THE SKEPTICAL INQUIRER.

Inquiries from the media and the public about the work of the Committee should be made to Paul Kurtz, Chairman, CSICOP, Box 229, Buffalo, NY 14215-0229. Tel.: (716) 834-3222. FAX: (716)-834-0841.

Articles, reports, reviews, and letters published in THE SKEPTICAL INQUIRER represent the views and work of individual authors. Their publication does not necessarily constitute an endorsement by CSICOP or its members unless so stated.

Copyright ©1989 by the Committee for the Scientific Investigation of Claims of the Paranormal, 3159 Bailey Ave., Buffalo, NY 14215-0229. All rights reserved.

Subscription Rates: Individuals, libraries, and institutions, $25.00 a year; back issues, $6.25 each.

Postmaster: THE SKEPTICAL INQUIRER is published quarterly. Winter, Spring, Summer, and Fall. Printed in the U.S.A. Second-class postage paid at Buffalo, New York, and additional mailing offices. Send changes of address to THE SKEPTICAL INQUIRER, Box 229, Buffalo, NY 14215-0229.

SKEPTICAL INQUIRER

Vol. 14, No. 3, Spring 1990

ISSN 0194-6730

Journal of the Committee for the Scientific Investigation of Claims of the Paranormal

SPECIAL REPORT **255**

Paranormal Pandemonium in the Soviet Union
Paul Kurtz

SCIENCE EDUCATION

Why We Need to Understand Science
Carl Sagan **263**

The Crisis in Pre-college Science and Math Education
Glenn T. Seaborg **270**

ARTICLES

Police Pursuit of Satanic Crime
Robert D. Hicks **276**

The Spread of Satanic-Cult Rumors
Jeffrey S. Victor **287**

Lying About Polygraph Tests
Elie A. Shneour **292**

Worldwide Disasters and Moon Phase
I. W. Kelly, D. H. Saklofske, and Roger Culver **298**

NEWS AND COMMENT **226**

Newman's 'Energy Machine' Loses in Court (Again) / Nancy Reagan Explains / Astrology Disclaimers Increase / Old Horoscopes in New Columns / Occult Thrives in France / CSICOP in Mexico City / CSICOP in Europe / What 'Unsolved Mystery'? / Pope Praises Galileo / In Brief / Worth Quoting

NOTES OF A FRINGE-WATCHER **245**

St. George and the Dragon of Creationism
Martin Gardner

PSYCHIC VIBRATIONS **251**

BOOK REVIEWS **302**

Nicholas P. Spanos and John F. Chaves, *Hypnosis: The Cognitive-Behavioral Perspective* (Lewis Jones) **302**

Communion—the Movie (Ronald D. Story) **308**

Robert Steiner, *Don't Get Taken!* (Kent Harker) **311**

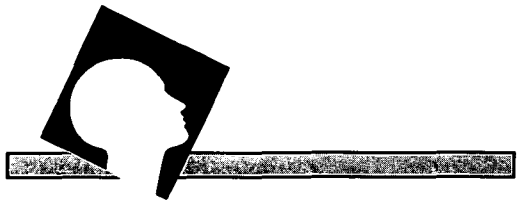
SOME RECENT BOOKS **313**

ARTICLES OF NOTE **315**

LETTERS TO THE EDITOR **318**

Cover design by Douglas A. Mess.

News and Comment



Federal Appeals Court Rules Against Newman's 'Energy Machine'

The federal court of appeals decision on Joseph W. Newman's "energy generation system" has been out for some time, but a reading of the full text reveals how decisive was the ruling against the maverick inventor.

You may recall that Newman is the Lucedale, Mississippi, inventor who claimed to have made a device with higher energy output than input. He went on many national talk-shows publicizing the "Newman energy machine." He said it would solve the world's energy problems and replace all current forms of energy production. His claims garnered more publicity than any other "perpetual motion" claim in recent memory. He had testimonials from some scientists and even had managed to get an endorsement by a former commissioner of the U.S. Patent Office who was appointed a Special Master by a federal court.

Nevertheless a federal district court for the District of Columbia insisted that the National Bureau of Standards make a detailed examination of the machine and determine whether it in fact produced more energy than it took in. The NBS study concluded that it did not: "At all conditions tested, the input power exceeded the output power. . . ." (*SI*, Winter 1986-87, pp. 114-116).

That court, as a result, ruled that Newman's machine was unpatentable. Newman's lawyers appealed.

In a wide-ranging ruling (*Newman* v. *Quigg*, No. 88-1312, July 5, 1989), the Federal Circuit Court of Appeals affirmed the district court's ruling. It also said the district court did not err in rejecting the special master's recommendation that the patent be issued and instead ordering the NBS study, "which did not verify results claimed by the inventor." And it said the inventor "had waived any right to now challenge alleged defects in test protocol."

In his appeal, Newman had argued that the NBS evaluation was defective because all tests were conducted with the device grounded. He stated that it was essential that his device not be grounded during operation. The court of appeals would have none of it. (The district court had heard these arguments as well; it had held that the NBS test procedures were appropriate, and their results "dispositive.")

"We need not decide whether the NBS tests were conducted by a flawed procedure, for any flaw could have been, and was not, corrected by Mr. Newman at the time of the tests," states the court of appeal's ruling. ". . . Mr. Newman does not dispute

that he had a copy of the test protocol before testing began. The record shows no communication or objection. The commissioner further points out that the patent specification does not mention the need to avoid grounding the device.

"We conclude that Mr. Newman had a duty to raise objection, before or during testing, to any defects in the test protocol. . . . He had a clear chance to obtain a definitive test, and to the extent that he did not take it, he can not now impeach the results that were conducted by procedures of which he had advanced knowledge. If there were flaws in the NBS protocol, we do not now give controlling weight to objections that could have been raised at a time when any errors could have readily been corrected."

The appeals court notes that "the district court, on trial of the merits, held Mr. Newman's invention unpatentable under 35 U.S.C. 101 because 'Newman's device lacks utility (in that it does not operate to produce what he claims it does).' " It notes that Newman then argued that the court gave undue weight to the NBS tests and failed to give overriding weight to testimonials and affidavits supporting the claimed increase in energy output.

"The court described the evidence on Newman's behalf as 'largely qualitative rather than quantified by measured data,' while 'credit[ing] in full the meticulously thorough and well-documented testing done by NBS.' . . . The court remarked that at best Mr. Newman's evidence showed prolonged operation on dry cell batteries, but that 'such a device is not the one for which Newman seeks a patent.' We discern no error in the district court's analysis, and conclude that the court did not clearly err in giving controlling weight to the NBS report and in concluding that the utility claimed for Newman's device had not been demonstrated."

The appeals court also upheld the district court's argument that Newman had failed to explain how to achieve the claimed results. "While it

is not a requirement of patentability that an inventor correctly set forth, or even know, how or why the invention works, neither is the patent applicant relieved of the requirement of teaching how to achieve the claimed result, even if the theory of operation is not correctly explained or even understood. . . . The district court held that Mr. Newman's claimed device and method do not produce the claimed result, following the teachings of the specification. We affirm that conclusion. . . .

"The decision of the district court that the claimed invention is unpatentable because it fails to comply with 35 U.S.C. 101 for lack of utility, and with 35 U.S.C. 112, first paragraph, for lack of enablement, is affirmed."

The court, in so affirming, said each party shall bear its own costs. Newman has since announced that he will take his case to the U.S. Supreme Court.

—*Kendrick Frazier*

Astrology in the White House: Nancy Reagan's View

Nancy Reagan's book *My Turn* (Random House, 1989) gives for the first time in her own words her version of the international controversy set off in 1988 over her use of astrology in the White House (*SI*, Fall 1988). One can almost feel sympathy for the former First Lady as she recounts her concern about her husband's safety. With a sophistication about such matters obviously no more advanced than that of millions of other Americans, she tells how she turned to astrology as a way to ameliorate fear and uncertainty.

"Astrology was simply one of the ways I coped with the fear I felt after my husband almost died in the assassination attempt [on March 30, 1981]." She was haunted by concerns about the "so-called 20-year death cycle for American presidents." (For more than a century, every president elected, or re-elected, in a year ending in zero had died in office.) Night after night she agonized over the president's safety. "When you're as frightened as I was, you reach out for help and comfort in any direction you can."

The most poignant and, in seeing its effects on her, most despicable incident in the astrology section of the book reveals how she was made to feel she could have prevented the 1981 shooting of Ronald Reagan, if only she had been attuned to the astrological bad vibes. Here is a view of believers in astrology playing on the fears of a scared and vulnerable person.

Television producer Merv Griffin, an old friend from the Reagans' Hollywood days, called her one afternoon and told her of Joan Quigley, a San Francisco astrologer. She had met Quigley once before and had had several calls from her during the 1980 presidential campaign, where Quigley volunteered her advice about "good" and "bad" times for Mr. Reagan.

"I remember my reaction as if it were yesterday to what Merv now told me on the phone. He had talked to Joan, who had said she could have warned me about March 30. According to Merv, Joan had said: 'The President should have stayed home. I could see from my charts that this was going to be a dangerous day for him.'

" 'Oh my God,' I remember telling Merv. *'I could have stopped it!'* I hung up the phone, picked it up again and called Joan." Quigley repeated her claim that she could see the day the

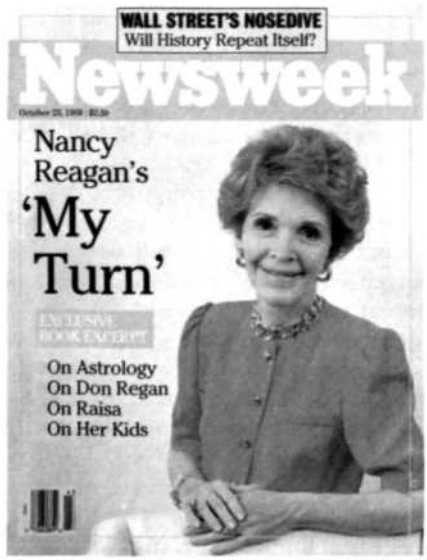
shooting happened was a very bad day for him. (Presumably this was an after-the-fact "insight.") "Joan was a good listener, and she responded with the warmth and compassion I needed."

Thus started their relationship. Quigley soon suggested Mrs. Reagan let her know when the president planned to travel. She would then call and tell her if those were bad or good days. "Well, I thought, what's the harm in that? And so, once or twice a month I would talk with Joan. . . . I would have Ronnie's schedule in front of me, and what I wanted to know was very simple: were specific dates safe or dangerous?"

Once Quigley got back to her with the information, Mrs. Reagan would, if necessary, call Michael Deaver, who was in charge of the president's schedule, and later Donald Regan, the president's chief of staff. "Sometimes a small change was made. . . . While astrology was a factor in determining Ronnie's schedule, it was never the only one, and no political decision was ever made based on it."

Mrs. Reagan says she realized that "if this ever came out, it could be embarrassing to Ronnie—although I never imagined just *how* embarrassing." Later, when Donald Regan disclosed these practices in his book, "it became the biggest story in town. I felt a terrible cold rush to the heart and a sinking feeling in my stomach. I felt shocked and humiliated. . . . I had always considered it as a private project, something I did to hedge our bets, to try to keep Ronnie from getting shot again—and to keep me from going mad with worry."

In the midst of the furor, "what I felt worst about was Ronnie, and I apologized to him. 'I feel terrible about this. I've put you in an awful position,' I said. 'No honey,' he kept saying. 'It's all right. I could see what you were going through. It's all right."



Nancy Reagan's story about her use of astrology appears in her book *My Turn* and in *Newsweek* excerpts.

She says her relationship with Quigley "began as a crutch," but "within a year or two, it had become a habit," and she didn't see the need to change, "because while I was never certain that Joan's astrological advice was helping to protect Ronnie, the fact is that nothing like March 30 ever happened again."

Mrs. Reagan does not disclose how much she paid Quigley. However CBS reported that Mrs. Reagan paid Quigley $3,000 a month, which amounts to $36,000 a year. She realized an astrologer shouldn't be sent checks from the First Lady, "so I asked a friend back in California to pay Joan and I reimbursed her each month."

In an appearance on the "Tonight" show (in which Johnny Carson, who had earlier got considerable joke mileage out of the astrology affair, this time politely avoided such jabs), Mrs. Reagan said she still felt she had done nothing wrong, but was sorry for the embarrassment she had caused the president.

Political observers were no kinder to Nancy Reagan over the explanations in her book than they were about the original disclosures about astrology in the White House (*SI*, Fall 1988, pp. 11-12).

New York Times columnist William Safire lambasted her over the revelation that she had kept her astrological watch over the president's schedule secret from her husband: "If a president decides to hire a witch doctor to help his planning by reading the entrails of chickens or if he uses a divining rod to discover leaks or prefers Tarot cards to CIA evaluations, that's the judgment we have elected.

"But if the timing of his movements and selection of his appearances are determined by his fearful wife's superstition without his knowledge, that abuse of the first lady's authority cannot be dismissed as harmless or cute."

—*Kendrick Frazier*

Twenty-Eight Papers Use Astrology Disclaimer

Five years ago, at a news conference in San Francisco and in a followup letter to all daily newspapers in the United States, the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) proposed that newspapers add a disclaimer to their astrology columns.

CSICOP Chairman Paul Kurtz called on newspapers to warn readers that neither astrology nor the advice published in horoscope columns has scientific validity. Kurtz and Andrew Fraknoi, of the Astronomical Society of the Pacific, pointed to the importance of scientific literacy and the way that publication of pseudoscience "tends to undermine the efforts of scientists and educators to improve the public understanding of science."

The wording suggested was: "The following astrological forecasts should be read for entertainment value only. Such predictions have no reliable basis in scientific fact."

The appeal caused considerable interest and controversy (*SI*, Spring 1985, pp. 194-196). But a few newspapers began running the suggested disclaimer, or a similar one, and the number continues to grow. The latest major addition to the roster is the *St. Louis Post-Dispatch*. Its disclaimer says simply, "Note: Horoscopes have no basis in scientific fact and should be read for entertainment, not guidance."

In a recent talk to a seminar of the Council for the Advancement of Science Writing, Cornell astronomer and educator (and CSICOP Fellow) Carl Sagan called astrology "bunk" and strongly criticized newspapers for carrying horoscope columns. Astrology "shares with racism and sexism the idea that you can divide the human community into a few slots and you can decide about people by knowing which of the 12 slots they happen to fit into," Sagan said.

"Pick up a newspaper and you can immediately tell—We're for hokum. We're in favor of bunk. It's a very bad sign. I wouldn't mind so much if opposite every astrology column there were a daily debunking-pseudoscience column."

Here is a list of newspapers known to be publishing a disclaimer with their astrology columns, as of January 1990:

Montgomery Advertiser (Ala.)
Alabama Journal (Ala.)
Arizona Daily Star (Ariz.)

Sun City Daily News (Ariz.)
San Jose Mercury News (Calif.)
Wilmington News Journal (Del.)
St. Petersburg Times (Fla.)
Columbus Ledger-Enquirer (Ga.)
Honolulu Advertiser (Hawaii)
Charleston Times Courier (Ill.)
Mattoon Journal Gazette (Ill.)
Indianapolis Star (Ind.)
Baton Rouge Morning Advocate (La.)
Baton Rouge State Times (La.)
Shreveport Journal (La.)
Adrian Telegram (Mich.)
St. Louis Post-Dispatch (Mo.)
Battle Creek Enquirer (Mich.)
Asbury Park Press (N.J.)
Auburn Citizen (N.Y.)
Hillsboro Press Gazette (Ohio)
Altoona Mirror (Pa.)
Pittsburgh Post-Gazette (Pa.)
Memphis Commercial Appeal (Tenn.)
Austin American Statesman (Tex.)
Orange Leader (Tex.)
Milwaukee Journal (Wis.)
Toronto Globe & Mail (Canada)

The exact wording of a disclaimer has never been the important issue. Indeed, as reader Thomas D. Fuller points out in a letter to the editor in this issue, a Virginia regional magazine uses a witty disclaimer that pokes fun at both itself and its horoscope column. In doing so, it *shows* that what's going on is only entertainment.

—*K.F.*

Consulting the Wrong Stars

An amusing, and illuminating, item about a newspaper's handling of a logistics problem it had with its astrology column was revealed recently by the newspaper itself.

In his "My Turn" column, F. G. Eaton, managing editor of the Adrian, Michigan, *Daily Telegraph*, wrote about the occasional problems caused when syndicated materials don't arrive on time. With some popular comics, they were able to substitute some strips scheduled for the following week. Another time they had to pirate some bridge columns from old papers. That brings Eaton to the astrology column:

"Probably the most notorious example of this kind of piracy occurred a couple of years ago too. (I've never told this story publicly before.) It involved the AstroGraph.

"We didn't have AstroGraph to use for a period of several weeks. The copy for this feature comes to us by satellite and is beamed directly into our computer. But for a while for some reason the beam wasn't beaming right. We lost about a month's worth.

"The people from the composing room came to me wondering what they should put on these pages, since they had no copy. What we did have, however, were copies of astrology columns from months before. Reasoning that it is all a bunch of claptrap anyway, we changed the dates and resorted the months (signs) and re-ran those columns.

"Anyone who actually looked to the AstroGraph for important life decisions would have been conferring with the wrong stars. But since the stars don't actually affect daily life on

earth, we didn't figure we had done anybody any harm." ■

France Possessed By the Occult and Irrational

The French have long thought of themselves as rationalists deeply imbued with the spirit of the seventeenth-century philosopher René Descartes, who exalted the mind and vowed never to accept any idea unless he had first subjected it to rigorous critical analysis.

But the Cartesian ideal is taking a buffeting as, according to sociologists, the French turn their backs on traditional religion, rationalist ideologies such as Marxism, and belief in scientific progress.

The rise of the occult and the irrational has been the cover story on two of the country's national news magazines.

According to a poll carried out to accompany the article in *L'Express*, a sizable proportion of the population believes in paranormal phenomena of one kind or another, including astrology, fortune-telling, witchcraft, sorcery and telepathy.

Education has nothing to do with it. French schools still teach in the Cartesian tradition, with heavy emphasis on math, geometry, logic, and science. But the poll of more than 1,500 people indicated that those with a higher scientific qualification were more likely to believe in the paranormal than those with basic primary schooling—46 percent compared with 41 percent.

And belief in the paranormal and astrology is highest among young people aged 18 to 24, the poll indicated.

According to the magazine *L'Evènement de Jeudi*, the fascination with the occult is most widespread among students, senior management, professors, and especially school teachers. The most skeptical, it said, were agricultural workers, technicians, and skilled workers. The Greens, members of the fast-growing environmental movement, are, for some reason, along with the far-right National Front, most likely to believe in the paranormal, the magazine said.

While France has fewer than 36,000 Roman Catholic clergy, there are more than 40,000 professional astrologers who declare their income to tax authorities—which says nothing of the undoubtedly far greater number of moonstruck stargazers, faith healers, mediums, necromancers, and fortune tellers of every imaginable stripe who choose not to declare their income.

It might come as no surprise to some of the whackier regions of the U.S. West Coast or the zanier elements in the Soviet Union, which has been in the grip of hysteria about

visiting spacemen, but the reality is that France appears to be taking its cue from Nostradamus rather than Descartes these days.

Large and established companies turn to graphologists, birth-date interpreters, and astrologers before hiring job candidates. A leading computer company only hires people after a tarot-card reading. A big insurance group uses a swinging pendulum to judge whether a candidate is honest.

Stores selling the paraphernalia of the occult, from Ouija boards to tarot cards, have sprung up even in some of the poshest shopping malls. Sorcerers advertise in newspapers promising to recover a lost love or find a new one. One firm of occult practitioners, called Divinitel, claims annual revenues of five million francs for services that include removing spells and bringing back lost romance.

Books about the occult are among the best of best-sellers. *The Predictions of Nostradamus* alone has sold more than 1.3 million copies. More than 300 publishers specialize in books on the occult, and there are hundreds of specialty stores to sell the books. Magazines specializing in horoscopes, fortune telling, and the occult sell a total of more than 300,000 copies.

The French do not even have to leave home to get their fortunes told. Minitel, the state-owned videotex system that services millions of homes, offers horoscopes, tarot-card readings, astrological predictions, and the like, provided by private message services that operate on the system. Television and radio broadcasts also are cluttered with programs about horoscopes and astrology.

Magic gewgaws find a ready market. A well-known actress, Danielle Gilbert, was briefly jailed recently for promoting the sale of 450,000 purportedly magic "Egyptian" rings.

Quack medicine flourishes, along with the sale of costly "magnetic" and "galvanic" machines that claim to ward off aches and pains, remove excess poundage, restore sagging flesh, and guarantee untroubled sleep.

"Instinctotherapy," which followers claim can cure everything from toothaches to AIDS, has a lively following despite the arrest of its leading guru, Guy-Claude Burger, a former musician, on a charge of illegally practicing medicine. Instinctotherapy consists of eating as much as you like of whatever it is you fancy providing it is uncooked.

An author named Rika Zaraï has become both rich and a media star with her claims to restore faded sex lives and to cure AIDS and just about everything else with special diets and combinations of herbs. Miss Zaraï sold two million copies of a book called *My Natural Medicine.*

—*Barry James*

Barry James is a reporter for the International Herald Tribune, *where this article originally appeared. Reprinted with permission.*

Latin-American Skeptics Conference

The first Latin-American skeptics conference convened in Mexico City on November 10 and 11, 1989, cosponsored by the Mexican Society for Skeptical Research (Sociedad Mexican para la Investigacion Esceptica, SOMIE) and the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP). More than 300 people attended ses-

sions at the University of Mexico and the Holiday Inn in Mexico City.

The conference focused on the growing influence of "magical thinking" and the need to develop public appreciation of the scientific method. The keynote address was delivered by Mario Bunge, a native of Argentina and now professor of philosophy at McGill University and one of Canada's most distinguished philosophers. Bunge deplored the growth of pseudoscience and the vulgarization of modern culture. He emphasized the importance of developing skepticism and critical thinking in educational institutions.

Other speakers were from the executive council of CSICOP, including Ray Hyman of the University of Oregon; James Alcock, York University, Toronto; James Randi, the well-known magician; Barry Karr, executive director of CSICOP, and myself. Several psychologists from the University of Mexico, and the influential journalists Luis Gonzalez de Alba and Raoul Priepo also participated.

CSICOP's executive council members were especially impressed by the fortitude of the students and faculty of the University of Mexico. Because of strikes and demonstrations in Mexico City on the opening day of the conference, our bus from the hotel to the university's psychology department was delayed two hours; yet the auditorium was packed with eager attendees who sat patiently waiting for us and then through four hours of our discussions without a break.

There was extensive press coverage of the conference. All of the major newspapers—*El Nacional, La Jornada, Excelsior*, etc.—and TV and radio stations covered the sessions.

Although a skeptics group has been informally in operation in Mexico for almost a decade, SOMIE was not officially established until August 1989. The Mexican skeptics have been active over the years, questioning psychic claims and pseudoscience on both national and local television and radio and in print, as well as sponsoring such projects as scientific research into "extra-occular visual perception," a widely promoted belief in Mexico, and an investigation of the magical healing powers of pepescohuibe, a tree bark that is claimed to cure almost everything.

SOMIE now has more than 160 members. Its chairman is Mario Mendez-Acosta, an engineer and journalist. Victor Vazquez, professor of psychology at the University of Mexico, is vice-chairman. Other members of the executive committee are Carlos Calderon, a stage magician who goes under the name of "Aba-Daba"; Victor Velarde, a medical doctor; Maurico-Jose Schwarz, a newspaper columnist; and UFO investigator Hector Chavarria. SOMIE has launched a new journal, *El Investigador Esceptico*, which will be made available throughout Latin America for Spanish-speaking readers. We were impressed by their ambitious plans for the future.

The generous hospitality of the SOMIE group was especially appreciated by those who attended the conference from the United States, Canada, and Central and South American countries. Given the widespread body of uncorroborated and unverified claims of the paranormal in Mexico and throughout Latin American, SOMIE can play an important role in providing some balanced appreciation for the fruits of scientific inquiry.

—*Paul Kurtz*

Paul Kurtz is chairman of CSICOP and a professor of philosophy at SUNY-Buffalo.

European Conference Examines Fringe Science and Medicine

Following is a brief overview of the Second European CSICOP Conference, held at Bad Tölz, near Munich, West Germany, from May 4 to 7, 1989. The hosts were the West German Society for the Scientific Investigation of Para-Science (GWUP). Speakers included European experts on topics of particular importance in Europe, and several members of the Executive Council of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP). Most of the talks were simultaneously translated into English, German, and Spanish. Our thanks for this summary to Mark Plummer, former executive director of CSICOP, and Amardeo Sarma, secretary of the host organization.

Three sessions (1, 2, and 4) of the 1989 CSICOP conference in Bad Tölz dealt with fringe medicine. The term *fringe* implies that such techniques are not a part of mainstream Western medical practice but leaves open the possibility that any of these therapies may be totally ineffective, somewhat helpful, or quite helpful in healing. Paul Knipschild, an epidemiologist at the University of Limberg in the Netherlands, said that evidence from clinical research must be used to evaluate alternative treatments. Clinical epidemiology, the methodology of performing and evaluating such research, is still evolving, but Knipschild said that his general impression from evaluating such techniques as acupuncture and homeopathy, as well as certain dietary supplements, is that the better-performed studies show less effectiveness.

Jean-Jaques Aulas, of the Unité Clinique de Psychiatrie Biologique in France, reported on French research in homeopathy. At the end of 1985, Aulas said, Georgina Dufoix, then Minister of Social Affairs, attempted to establish a foundation for the examination of alternative medical methods. The foundation was abandoned in 1986, however, by Dufoix's successor, Michele Barzach. The only clinical research on homeopathy completed in France was performed by Grecho, a research team formed for this purpose. Though they proposed three separate studies, they completed only one—on homeopathy and the resumption of digestion after abdominal surgery. The results of this study were negative. Aulas stressed that further scientific evaluation of alternative medical treatments, including homeopathy, whose effectiveness has yet to be demonstrated, is ethically necessary. He claimed that the possibility of such evaluation has been demonstrated by the Grecho experiment, which was done under strictly controlled conditions and in complete independence of homeopathy laboratories.

Andreas Gertler, of the Institute of Forensic Medicine in East Berlin, gave a paper on the situation of alternative medical practices in East Germany. Many patients there, said Gertler, are not content with orthodox medical practice, feeling that doctors should use fewer pills and less machinery and spend more time with the patient. In East Germany, a law prevents nongraduated physicians from practicing any kind of professional medicine, but Gertler said the M.D.s themselves use nonconventional techniques, such as acupuncture, neural therapy, and cancer treatments that include mistletoe extracts, special diets, and teas, and homeopathy. Though acupuncture has been tested by centuries of use in China, Gertler pointed out that it

has been the subject of serious criticism, mainly by forensic pathologists. He was quite skeptical of all the alternative therapies he discussed.

B. Velimirovic, a professor of medicine at the University of Graz, Austria, worried that as the New Age movement spreads from America to Europe, it may bring with it other questionable medical practices. Along with this infusion, Germany has seen its own development of holistic medicine, which Velimirovic blames not on a growing awareness of, and confidence in, the individual's ability to maintain good health without the use of complex laboratory chemicals, but on economic factors, such as the high cost of medical services and the inability of the system to cope with the burdens of the social environment.

Session 3, on the New Age, began with a harsh critique, by Martin Lambeck, professor of physics at the Technical University of Berlin, of Fritjof Capra's popular books *The Tao of Physics* and *The Turning Point*, which relate discoveries in quantum physics to Eastern thought. Lambeck claimed that Capra's assertions are based on a misinterpretation of a hypothetical experiment proposed by Einstein, Podolsky, and Rosen, and that Capra's own claims are in contradiction to the true meaning of the assertions of authorities, as well as to the findings of all experiments so far conducted.

In a paper titled "The Longing for Mysticism," Hans Schaefer, professor emeritus of Heidelberg University, acknowledged that because of the placebo effect nonscientific beliefs sometimes appear to be successful in the healing of illness. Schaefer believes that thinking is strongly influenced by emotional states, which are explained physiologically as the stimulation of *subcortal* zones of the brain, controlled by chemical processes that in turn depend on electrophysiological processes. These processes function to secure human existence and are important when the body is threatened by sickness. The power of medical mysticism, Schaefer said, lies in the strong effect of emotion on the body. Schaefer is concerned that a completely rational base for medicine will destroy faith as a healing factor, but he said that the same principle can be used rationally within the system of psychosomatic medicine.

In Session 4, ethnologist Helga Velimirovic addressed the topic of "psychic surgeons" of the Philippines. Though psychic surgery is frowned upon by most Filipinos, people from all over the world mistakenly believe it is a practice of traditional shamanism and travel to the Philippines for such treatments as a "last hope." Actually the origin of psychic surgery dates to the early twentieth century. Further, scientific examinations have shown that it is based on trickery.

In his paper "Legal Issues When Dealing with Fringe Medicine," A. P. F. Ehlers, a physician from München, West Germany, called for new legal restrictions on the freedom to practice therapy. Available legal instruments, he said, are insufficient to prevent damage to the health and well-being of patients who are unable to assess the implications of the increased use of fringe medicine. It is, in general, only after the damage has occurred that legal measures are possible.

In Session 5, University of London biologist Michael Howgate discussed *Archaeopteryx lithographica*, a fossil discovered in 1861. The fossil supports evolutionary theory because it is an intermediate species, part reptile and part bird. Anti-evolutionists have gone from calling it a "peculiarly feathered reptile" (nonbird) to claiming it is 100-percent bird. Neither of these positions is defensible, however.

Although Fred Hoyle claims that the fossil is a fake, Howgate—along with experts in paleontology—considers this claim to be completely unfounded.

Ulrich Thimm, a journalist from Giessen, discussed the position of creationism in West Germany, where 78 percent of the population believe that the Book of Genesis correctly describes the origin of the earth and its life. Creationism, which was imported from the United States, continues to grow in Germany, drawing its support from evangelical Christians.

Session 6 began with a discussion by Rolf Manne, professor of chemistry at the University of Bergen, of the Norwegian experience with dowsing as a means of locating avalanche victims. Double-blind experiments performed by the Norwegian Army in 1987 showed a lack of positive results (see *SI*, Spring 1988, p. 234). Manne stressed the need for the Norwegian Army and the Red Cross to find legitimate, simple, and safe tools for the location and rescue of avalanche victims. He wondered how to separate any possible legitimate effect of dowsing from the illusory effect discovered in Norway.

James Randi, who had offered all dowsers—and claimants of other paranormal powers—to take part in his live television show aired in June 1989 (see *SI*, Fall 1989) with the chance to win $100,000, offered his services to those involved in the German Dowsing Research Project to ensure proper experimental conditions.

Amardeo Sarma, secretary of GWUP, discussed the German dowsing project, which received 400,000 Deutschmarks from the German Federal Ministry for Research and Technology. The project was titled "The Reaction of Low-Intensity Fields on Biological Macrosystems." The actual experiments, however, were intended to check on conventional dowsing claims, including the so-called E-rays (*Erdstrahlen* in German). These E-Rays are claimed to cause the dowsing reaction. After participants in the project presented the experiments, Sarma criticized some of the known loopholes in the test. He also regretted the refusal of the Munich researchers, who are known to be "open" to paranormal claims, to accept support and advice from the German Society for the Investigation of Para-Science.

John Lord, of the University of Surrey, U.K., discussed parapsychology and its failure to meet at least one criterion for acceptance as a science. He summarized work of recent philosophers of science (Popper, Lakatos, Kuhn), and also focused on J. S. Mill's outline of scientific methodology. Lord showed how parapsychology, because of the fundamental flaws in its preconceptions, cannot possibly follow Mill's procedures, which he feels are fundamentally sound. For these reasons, Lord feels that parapsychology has no credibility as a science and is impotent to discover anything significant about its own subject matter.

Curt Roslund, astronomy professor at the University of Gothenburg, Sweden, discussed the "Astrology, Science or Pseudoscience" course instituted in 1977 at his university. It is designed to demonstrate the invalidity of astrology, and is effective because it is taught by astronomers, who are well versed in planetary motions and statistics. The course is not restricted to university students, and it draws many schoolteachers who can then pass the critique of astrology on to their students.

Claude Benski, secretary general of the French Committee for the Study of Paranormal Phenomena, discussed the statistical risks when testing hypotheses. Normally there are two

kinds of risks involved: the risk of rejecting a hypothesis that is true, and the risk of accepting a hypothesis that is not true. Statistical evaluation enables a researcher to know what the chances are for obtaining the observed results independent of the truth or falsity of the hypothesis. Benski noted that paranormal claims are usually evaluated without proper use of the statistical method, thereby incurring a third risk: that of conscious or unconscious cheating.

Jean-Paul van Bendegem, a professor at the Free University of Brussels, described the new arguments, by Larry Landen, for drawing the distinction between science and pseudoscience. Landen's is a pragmatic approach, which bases the claim of validity for a theory on its problem-solving capacity, making reference to truth-value irrelevant, but pointing to the worthlessness of pseudoscience as the distinguishing factor.

The two papers given in the final session, taken together, were somewhat alarming. First, Andreas Dill's paper, presented by Andreas Gertler because Dill was unable to attend, pointed out that although there was no *necessary* connection between the two, both fascism and pseudoscience rejected elementary rules of critical thinking. He described the anti-scientific nature of fascism.

Finally, science writer D. J. Fisher, of Bristol, U.K., discussed the proliferation of university-level research in the U.K. into pseudoscientific areas. Much of this, Fisher says, is bibliographic or skeptically inspired, but some exhibits typical hallmarks of what he calls "pathological science"—something to watch out for.

The Third CSICOP European Conference is scheduled to be held at the Free University of Brussels, Brussels, Belgium, August 10-11, 1990.

'What Unsolved Mystery?': An Editorial Slam

When the television show "Unsolved Mysteries" blew up a pleasant Nebraska church (scheduled for razing anyway) to dramatize a supposed mystery in the explosion of another church, in Beatrice, Nebraska, in 1950, the *Omaha World-Herald* decided to editorialize against the show's sensationalism. At the same time the paper struck a strong blow for clear thinking about "mysteries."

"While there is no 'unsolved mystery' about the Beatrice blast—fire officials blamed gas—'Unsolved Mysteries' producer Tim Rogan plans to play around with the 'divine intervention' aspect of the fact that 12 choir members scheduled to be at practice when the church exploded hadn't yet arrived," said the editorial, titled "What Unsolved Mystery?" (November 23, 1989). "'What was the force that led all 12 members to show up late that night?' Rogan asks.

"The 'force' was undoubtedly coincidence," the editorial states. It recounts *World-Herald* news accounts at the time suggesting various mundane reasons for the choir members' being late.

"When Rogan and his people try to capitalize on a simple gas explosion that occurred in a small Nebraska church almost 40 years ago, it shows something about how desperate these multiplying tabloid television shows are to find 'stories' to illustrate.

"A mysterious force indeed.

"That kind of what-if nonsense, stretching facts like Silly Putty and bouncing them nearly as high, is why tabloid television shows don't deserve

the time Americans spend watching them."

—K.F.

Official Rehabilitation of Galileo? Pope Praises 'That Great Man'

For some years now the Catholic church has been taking a series of steps to atone for its trial and incarceration of Galileo on heresy charges more than 350 years ago. Pope John Paul II had previously said the Inquisition erred in condemning Galileo for teaching that the earth goes around the sun.

But this past September John Paul traveled to Galileo's home town of Pisa and made his strongest pro-Galileo statement yet. He said Galileo was right and the church was wrong.

Speaking on Sunday, September 24, 1989, at the University of Pisa, where Galileo studied and taught, the pope referred to some of the university's distinguished alumni—"above all, the very great Galileo."

At the beginning of the same weekend, John Paul stood on a bridge overlooking the Arno River and declared: "How can one not call the name of that great man who was born here and from here took the first steps toward immortal fame?

"Galileo Galilei, whose scientific work, imprudently opposed at the beginning, is now recognized by all as an essential step in the methodology of research and, in general, on the path toward the knowledge of the world of nature."

The pope's statements were widely interpreted by the citizens of Pisa as Galileo's official rehabilitation. ■

In Brief: Quakes, Crumbling Communism, and a Complaint

After the San Francisco area earthquake last October, *Washington Post* columnist Richard Cohen decided to ask Joan Quigley, Nancy Reagan's much-publicized astrologer, if she had known it was coming and had taken advance action. He found she had been at home, in San Francisco. "I've never been so jolted, so shaken," she said. Says Cohen, "What I want to know is why a woman who told the president the precise moment to sign a treaty couldn't see an earthquake coming." Alas, she said that kind of prediction is best left to an earthquake astrologer. Quigley insisted that she *did* know an earthquake was coming, just not *when*. "No doubt," writes Cohen. "But the fact remains that the woman who told Nancy Reagan what treaties Ronald Reagan should sign, when he should sign them, what to do and when to do it at Bitburg, when Air Force One should take off, when press conferences should be held, and even that Mikhail Gorbachev was on the level and it was time to drop the 'evil empire' nonsense did not get out of town for an earthquake."

* * *

The crumbling of communist power in Eastern Europe and the dismantling of the Berlin Wall in the latter months of 1989 were among the most momentous events of the postwar era. They were also a surprise to virtually everyone. "No journalist, politician, professor, or economic expert saw that change would come so suddenly to so many countries all over the East,"

wrote the *New York Times* (December 1, 1989). What a good opportunity this was for astrologers and psychics to have shown off their ability to see the future.

* * *

When *SI* reader Vincent F. Safuto of Lake Worth, Florida, got a "very irritating and insulting" phone call from Time-Life Books about its pro-paranormal "Mysteries of the Unknown" series (see *SI*, Summer 1989; Summer 1987; Spring 1987), he wrote a letter of complaint to George Constable, editor of Time-Life Books. Safuto described the calls as "an insult to my intelligence." After some preliminaries, Safuto told Time-Life, during which he and the phone solicitor discussed the science-oriented "Voyage Through the Universe" series, which Safuto gets and enjoys, the solicitor "proceeded to tell me about the arrival of 'aliens' from a UFO that had landed in the Soviet Union and how interesting it all was. I replied that I was the wrong person to ask about UFOs, since I am an amateur astronomer and feel that the whole UFO 'phenomenon' is a crock of manure. . . . He then launched into a rapturous advertisement for the . . . series, saying all my doubts would be resolved. Needless to say, I informed him of my lack of interest in the subject and ended the conversation. At a time when most of the media pander to pseudoscience, Time-Life's approach to science is refreshing and informative. However I am distressed at Time-Life's desire to get on the 'New Age bandwagon.' . . . I do not wish to receive any more solicitations from Time-Life Books, either by phone or mail."

* * *

A show of "psychics" and "seers," scheduled for the Indiana, Pennsylvania, Mall's twentieth-anniversary celebration, had to be canceled, according to the mall's announcement, due to "unforeseen scheduling difficulties."

—K.F.

Worth Quoting

Science and Codswallop

The difference between science and codswallop is real, if not always that evident. Science is what impels us to find out if something might be or clearly isn't the case. Codswallop is what tells us that things can just as easily be one thing or another and there's no telling which and so we might just as well forget about it and believe whatever pleases us the most. Science is spending a lifetime trying to discover, if only to discover we were wrong.

—Ralph Estling, in *New Scientist* (May 27, 1989, pp. 75-76)

Hallmarks of Cranks

A hallmark of crank manuscripts is that they solve everything. . . . *A second hallmark of cranks is that they are humorless. A third hallmark of the crank is that he is sure everyone is out to steal his ideas. A fourth hallmark of the crank is that he is determined to bring the newspapers in somehow. A fifth hallmark of cranks is that they use a lot of capital letters.*

—Jeremy Bernstein, *Science Observed: Essays Out of My Mind* (Basic Books, New York, 1983, pp. 305-314)

The Real Stuff

One of the most amazing spaces I run across regularly is the magazine rack at the grocery store checkout counter. Here I can read all about the latest UFO sightings and other fantastic scenarios. . . .

At the National Air and Space Museum we feature original artifacts of genuinely *fantastic air and space exploits. . . .*

If we can sensitize our visitors to the "real stuff" in the Museum, perhaps they will come away more objectively critical of the bizarre stories that appear even in mainstream media and overcome our better judgment with repetition. While the tabloids appeal to our craving for the mysterious, the real world offers every bit as much drama—actually more, because editors have limited imaginations, but nature has no such constraints.

—Howard A. Smith, National Air & Space Museum, in *Air & Space/Smithsonian*, (Dec. 1989/Jan. 1990)

THE FIRST CSICOP MEMBER

We invite you to join us in

Washington, D.C.

for the

1990 CSICOP Conference

Hyatt Regency Crystal City
(at Washington National Airport)

Critical Thinking and Scientific Literacy

Friday, Saturday, and Sunday

March 30 through April 1

Note: The CSICOP Hospitality Room on the lobby floor of the hotel will open at 5:00 P.M. on Thursday, March 29 (cash bar 7:30 to 11:00 P.M.) This room will be available to registrants for the duration of the conference.

Friday, March 30

7:30 - 9:00 A.M.: Registration

9:00 A.M. - 12:00 NOON: SCIENTIFIC LITERACY

Moderator: Paul Kurtz, CSICOP Chairman, professor of philosophy SUNY, Buffalo

Michael Zimmerman, associate dean and professor of biology, Oberlin College

John Paulos, professor of mathematics, Temple University, author of *Innumeracy*

Robert Crease, asst. professor of philosophy, SUNY at Stony Brook

12:00 NOON - 2:00 P.M.: Lunch Break

2:00 P.M. - 5:00 P.M.: Two concurrent sessions

I. CRITICAL THINKING IN PUBLIC EDUCATION

Moderator: Paul MacCready, scientist, engineer, AeroViroment, Inc.

Anton Lawson, professor of zoology, Arizona State University

Richard Schrock, assistant professor of biology, Emporia State University

Steven Hoffmaster, professor of physics, Gonzaga University

II. (1) PUBLIC POLICY AND THE PARANORMAL
(2:00 - 4:00 P.M.)

Ray Hyman, professor of psychology, University of Oregon, Eugene

Claiborne Pell, U.S. Senator from Rhode Island

(2) EVERYTHING YOU EVER WANTED TO KNOW ABOUT UFOs BUT WERE AFRAID TO ASK
(4:00 - 5:00 P.M.)

Philip J. Klass, aerospace journalist and UFO investigator

5:00 P.M. - 8:00 P.M.: Dinner Break

8:00 P.M.: KEYNOTE ADDRESS

Gerard Piel, chairman emeritus, *Scientific American,* former president of AAAS

Saturday, March 31

9:00 A.M. - 12:00 NOON: ASTRONOMY AND PSEUDOSCIENCE

Moderator: Philip Ianna, associate professor of astronomy, University of Virginia

Andrew Fraknoi, astronomer, executive director, Astronomical Society of the Pacific

David Morrison, chief, Space Science Division, NASA

Bernard Leikind, physicist, General Atomics Inc.

12:00 NOON - 2:00 P.M.: CSICOP LUNCHEON (optional)

Hosted by Kendrick Frazier and Philip J. Klass

2:00 P.M. - 5:00 P.M.: Two concurrent sessions

I. PSYCHIC PHENOMENA AND THE LAWS OF PHYSICS

Moderator: James Alcock, psychologist, York University, Toronto

Milton Rothman, professor of physics (ret.), Philadelphia

Robert Jahn, dean emeritus, School of Engineering, Princeton

Victor Stenger, professor of physics and astronomy, University of Hawaii

Menas Kafatos, professor of physics, George Mason University

II. ANIMAL RIGHTS AND SCIENTIFIC RESEARCH

Moderator: Lee Nisbet, professor of philosophy, Medaille College

Randall Lockwood, director, Higher Education Program, Humane Society of the U.S., Washington, D.C.

Larry Horton, vice-president of public affairs, Stanford University

Franklin Loew, dean, School of Veterinary Medicine, Tufts University

Donald J. Barnes, Director, Washington Office of the Anti-Vivisection Society

6:00 P.M. - 7:00 P.M.: Pre-Banquet Social Hour (cash bar)

7:00 P.M. - 10:00 P.M.: AWARDS BANQUET (optional)

Awards Presentation: Paul Kurtz, CSICOP Chairman

"Public Understanding of Science," Richard Berendzen, president, American University

Bill Nye, the "Science Guy"

(program continued on next page)

Sunday, April 1

9:00 A.M. - 10:30 A.M.: OPEN FORUM
with CSICOP Executive Council

11:00 A.M. - 1:00 P.M.: THE SKEPTICS' PERSPECTIVE

Moderator: Barry Karr, CSICOP executive director; D. W. "Chip" Denman, president, National Capital Area Skeptics; Barry Beyerstein, chairman, British Columbia Skeptics; James McGaha, chairman, Tucson Skeptical Society, Mario Mendez-Acosta, chairman, Mexican Society for Skeptical Investigation, Al Seckel, exec. director, Southern California Skeptics, Gary Posner, secretary, Tampa Bay Skeptics, and others

REGISTRATION: Please use form below. Preregistration is advised. (Registration fee does not include meals or accommodations.)

Conference Registration Form

1990 CSICOP Conference, P.O. Box 229, Buffalo, NY 14215

☐ **YES, I (we) plan to attend the 1990 CSICOP Conference.**

☐ $99 registration for ____ person(s), includes Keynote Address. (Students $45.00) $_____

☐ $20.00 Saturday Luncheon for ____ person(s) $_____

☐ $30.00 Saturday Awards Banquet for ____ person(s) $_____

☐ $7.00 Keynote Address (this fee is for nonregistrants only) for ____ person(s) $_____

☐ Check enclosed

Charge my MasterCard ☐ Visa ☐

Acct. # _____ Exp. _____

Name _____

Address _____

City _____ State _____ Zip _____

☐ No, I will not be able to attend the conference, but please accept my contribution (tax-deductible) of $_____ to help cover the costs of this and future CSICOP special events.

ACCOMMODATIONS: Hyatt Regency Crystal City at Washington National Airport. Telephone 703-418-1234. Single occupancy $85, double occupancy $95, triple occupancy $105, plus tax. For these special rates, request accommodations for CSICOP Conference. These rates will be honored for any night(s) from March 27 through April 3. Check-in time 3:00 P.M.; check-out time 12:00 NOON. Complimentary van service to and from Washington National Airport.

For further information, call or write: Mary Rose Hays, 1990 CSICOP Conference, P.O. Box 229, Buffalo, New York 14215, or call 716-834-3222.

Notes of a Fringe-Watcher

MARTIN GARDNER

St. George And the Dragon Of Creationism

No real beauty, no lasting goodness can in my belief, result from anything which is not true.

—St. George Mivart

In the long, sad history of the war between science and Christianity, no episode is sadder than the career of St. George Jackson Mivart (1827-1900). It is a story that has been almost forgotten. It deserves retelling.

One of England's most distinguished zoologists, Mivart was born in London, where his father, a Low Church Anglican, owned the Mivart Hotel, on Brook Street. (Later it became Claridge's.) At the age of 16, Mivart was converted to Roman Catholicism. Until his death he remained loyal to his faith, never doubting a personal Triune God, an afterlife, the miracle of the Eucharist, or the superiority of Catholicism to all other religions. He had hoped to go to Oxford, but his conversion barred him from both Oxford and Cambridge.

It was Thomas Huxley who persuaded Mivart that evolution was as firmly established as Copernican astronomy—although the process by which it operated left room for debate. For years Mivart attended Huxley's lectures at the British Museum, and the two men became good friends. Later they had a falling out over disagreements about the process of evolution, but one of the finest tributes ever paid to Huxley was Mivart's "Reminiscences of Thomas Huxley," in the *Nineteenth Century* (December 1897). "I learned more from him in two years," Mivart wrote, "than I had acquired in any previous decade of biological study."

In 1871, Mivart published his most famous book, *The Genesis of Species.* Although he accepted the broad scenario of Darwin's *Origin of Species,* he argued convincingly that natural selection alone was insufficient to account for the rise of species. It had to be supplemented "by the concurrent action of some other natural law or laws, at present undiscovered." These were accurate and prophetic words. Like Darwin, Mivart was a Lamarckian, unaware of what would later become known about the role played by genes and their random mutations in the evolutionary process.

Darwin recognized the many gaps in the fossil record and the absence of known transitional forms, but he explained those blanks by stressing how rare conditions are for fossilization. Mivart believed the gaps were

St. George Jackson Mivart, who sought to reconcile science and religion.

too large to be so explained. "These 'jumps' are considerable in comparison with the minute variations of 'Natural Selection,' " he wrote. In a dim way, Mivart anticipated the punctuated-equilibrium theory advocated today by Stephen Jay Gould and his associates.

The biggest leap of all, Mivart argued in *Man and Apes* (1873), was the abrupt transition from apelike creatures to the first humans. Like most of today's Catholic philosophers, and like Mortimer Adler in his book *The Difference of Man and the Difference It Makes*, Mivart believed that the jump was too huge to be accounted for without a divine intervention that infused an immortal soul into the minds of the first men and women. "For my part," he wrote, "my reason *alone* convinces me that there is far more difference between the lowest savage and the highest ape than there is between the highest ape and a lump of granite."

Mivart was a skillful, prolific, widely read author of books and articles about anatomy, zoology, evolution, religion, and the philosophy of science. Among his some twenty other books, the following titles suggest the scope of his research and thinking: *The Common Frog; The Cat* (557 pages!); *Nature and Thought; A Philosophical Catechism; On Truth; The Origin of Human Reason; Birds; Essays and Criticisms; American Types of Animal Life; An Introduction to the Elements of Science;* and *The Groundwork of Science.* He also published, under the pseudonym of D'Arcy Drew, a novel of ideas titled *Henry Standon.* No book by Mivart is now in print.

The initial reaction to Mivart's views, among both Catholics and Anglicans, was favorable. Cardinal John Henry Newman, a friend of Mivart, thought highly of them. Pope Pius IX, in 1876, awarded Mivart a doctor of philosophy degree for his efforts to reconcile science and Catholic faith. On November 1, 1874, Lewis Carroll put this entry into his diary:

> Not being well, I stayed in all day, and during the day read the whole of [Sir George] Mivart's *Genesis of Species*, a most interesting and satisfactory book, showing, as it does, the insufficiency of "Natural Selection" *alone* to account for the universe, and its perfect compatibility with the creative and guiding power of God. The theory of "Correspondence to Environment" is also brought into harmony with the Christian's belief.

In the sixth edition of *Origin of Species*, Darwin devoted many pages to Mivart's views on evolution and why he disagreed with them. At first, Darwin and Huxley treated Mivart with respect, but his continual attacks on their opinions soon turned both men against him. The church, too, became hostile. Why? Because Mivart kept insisting, over and over, that

unless the church wholeheartedly accepted evolution as a fact, not just a theory that Catholics were permitted to believe, it would be repeating the same colossal mistake it had made in refusing to accept Galileo's Copernican astronomy. The Bible, Mivart argued, is not a guide for any kind of science. Nor can it be taken as accurate in its history.

Trying to persuade his church to accept evolution, and to broaden its approach to Scripture, became the dominant goal of Mivart's life. As he grew older, his views became more liberal. He began to denounce such entrenched doctrines as the everlasting punishment of the wicked. Three forceful articles titled "Happiness in Hell" (*Nineteenth Century*, December 1892, February and April 1893) were praised by liberal Anglicans, but roundly denounced by leading Catholics.

Later, in "The Continuity of Catholicism" (*Nineteenth Century*, January 1900), Mivart outlined the major changes he believed were inevitable if his church were to continue to hold the allegiance of the educated: It must stop teaching that outside the church there is no salvation. It must accept evolution. It must abandon the doctrine of biblical inerrancy. Indeed, he wrote, educated Catholics had already ceased to accept the Genesis account of creation, the stories of Adam and Eve, Noah's flood, the Tower of Babel, Joshua's stopping of the earth's rotation, and hundreds of other biblical myths "no more worthy of respect than Jack and the Beanstalk."

Mivart soon was going even further in blasting cherished dogmas. Although the Bible is inspired in its theological and moral teachings, he wrote, informed Catholics of the future will have to abandon such primitive doctrines as the Virgin Birth, the Immaculate Conception, the physical resurrection of Jesus, and beliefs in witchcraft and demon possession. Such changes of opinion, he argued, had already taken place among liberal Catholics. In view of many past alterations of Catholic beliefs, Mivart

did not consider these new changes to be serious breaches of church doctrine: "I am convinced that the great changes herein referred to are but preludes to far greater changes in the future—changes which will be most salutary."

In his last article before his death, "Scripture and Roman Catholicism" (*Nineteenth Century*, March 1900), Mivart continued to hammer home his message. He spoke of the "impassable gulf" that "yawns between science and Roman Catholic teaching." The church will decline, Mivart warned, if it continues to defend the doctrine of papal infallibility. Like the fatal garment of Nessus, that doctrine will "cling to her and eat away her substance till she is reduced to a mouldering and repulsive skeleton."

In a more hopeful mood, Mivart wrote elsewhere, "I do believe that a noble and true Catholicity is possibly developed in continuity with the Catholicity of the past, but it must be a continuous development like that of the butterfly from the grub." This new reformation is less likely to come from the Vatican, he believed, than from the pressure of enlightened Catholic opinion, a "slow, silent, indirect action" that in time will win the day.

Such strong indictments were too much for the church. Cardinal Herbert Vaughan, Archbishop of Westminster, demanded that Mivart sign a lengthy confession of faith. When Mivart refused, his *Nineteenth Century* articles were placed on the church's *Index* of forbidden writings, and Mivart was excommunicated. After his death two months later, from a heart attack, his body was denied Christian burial. The final ironic insult came four years later when his Catholic followers (often called "Mivartians" in England and "Mivart Men" in France) persuaded the church to transpose Mivart's body to sacred ground. He had been suffering from diabetes before he died, they said, and therefore was not in his right mind when he wrote his offensive articles!

Mivart's books on evolution are now dated and of only historical interest, but his quixotic, courageous efforts to liberalize his church have succeeded beyond anything he deemed possible. There is little in his writings about Catholic theology that is not now commonplace opinion among Catholic intellectuals even if such liberal views have not yet invaded the Vatican or filtered down to the masses of Catholics around the world. If there is a line in Mivart's attacks on church dogmas that Father Andrew Greeley, Hans Küng, Edward Schillebeeckx, and a hundred other liberal Catholic thinkers today cannot accept, I do not know what line it is. Even the Vatican's official position is that evolution may be taught in Catholic schools as a viable theory provided it does not deny that God injected human souls into the process when the time was ripe. Catholic theologians, philosophers, and scholars, in their acceptance of evolution and modern biblical criticism, are far ahead of today's know-nothing Protestant fundamentalists.

It is a scandal that Mivart's role in pioneering these changes has been so completely ignored. Only one book has been devoted to his career, *A Conscience in Conflict* (Columbia University Press, 1960), an excellent biography of Mivart by anthropologist Jacob Gruber. Gruber sees Mivart as a tragic figure, a bit too vain and too sure of himself, who died rejected by both his church and by England's scientific establishment. Even the Catholic "modernists" who appeared on the scene in France and England around the turn of the century were

not favorably impressed by his work. George Tyrell, a leading Jesuit modernist (he too was soon excommunicated), saw in Mivart no more than "a useful object lesson . . . on the necessity of keeping one's temper."

Like Galileo, Mivart fought his final battles alone. "Alone he reaped the galling punishment," Gruber writes in his epilogue. "Always he was alone." It is probably too early to expect the Catholic church to recognize Mivart's prescience. Surely it is not too early to gather his major articles on science and religion into a single volume. ■

International Skeptics Conference

Sponsored by

the Committee for the Scientific Investigation of Claims of the Paranormal and European Skeptics Organizations

Brussels, Belgium

Friday and Saturday, August 10 and 11, 1990

"Paranormal Belief in Europe"

Friday, August 10: 7:00 P.M.—Brussels Hilton Hotel

Awards Banquet

Speakers include: Michael Hutchinson (UK), Vladimir Lvoff (USSR), Lars Peter Jepson (Denmark), Claude Benski, Merlin Gerin (France), Cornelis de Jager, Univ. of Utrecht (Netherlands), Henri Broch, Univ. of Nice (France), Amardeo Sarma, Society for the Scientific Investigation of Para-Science (W. Germany)

Saturday, August 11—Free University of Brussels

9:00 A.M. - 12:00 NOON and 2:00 - 5:00 P.M.

Speakers include: Susan Blackmore, Univ. of Bristol (UK), Cornelis de Jager, Univ. of Utrecht (Netherlands), Paul Kurtz, SUNY at Buffalo (USA), Ray Hyman, Univ. of Oregon (USA), Jean-Claude Pecker, College of France, Henri Broch, Univ. of Nice (France), A. Gertler, Inst. of Forensic Medicine (E. Germany), Evry Schatzman, president, French Physics Assn. Additional speakers to be announced. (Simultaneous translation in English and French.)

Registration: $45 (students $25); Banquet: $35

Accommodations: Special rates available at the Brussels Hitlton Hotel. For further information, contact Mary Rose Hays, CSICOP, P.O. Box 229, Buffalo, NY 14215-0229. Tele.: (716) 834-3222. FAX (716) 834-0841.

☐ **YES,** I(we) would like to attend the International Skeptics Conference

Check enclosed ☐ Charge my MasterCard ☐ or Visa ☐

Acct. # _____ Exp. date _____

Name _____

Address _____

City _____ State _____ Zip _____

The perfect gift for relatives and friends.

Save up to 30%

$25.00 for first one-year gift subscription

1.

NAME (please print)

ADDRESS CITY STATE ZIP

only $18.75 for second one-year gift subscription (25% savings)

2.

NAME (please print)

ADDRESS CITY STATE ZIP

only $17.50 for each additional gift hereafter (30% savings)

3.

NAME (please print)

ADDRESS CITY STATE ZIP

4.

NAME (please print)

ADDRESS CITY STATE ZIP

A gift card will be sent in your name.

YOUR NAME (please print)

ADDRESS CITY STATE ZIP

Include my own subscription for

1 year ($25.00) ☐ 2 years ($43.00) ☐ 3 years ($59.00) ☐

Charge my ☐ Visa ☐ MasterCard ☐ Check enclosed ☐ Bill me

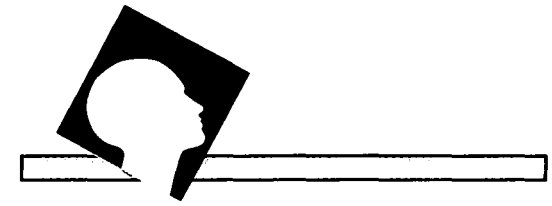
#_____ Exp. _____ **Total $** _____

(Outside the U.S., please pay in U.S. funds drawn on a U.S. bank. If you live outside North America and would like airmail, add $16.00 a year.

Order toll-free: 800-634-1610 (In New York State call 716-834-3222.)

SKEPTICAL INQUIRER • Box 229 • Buffalo, New York 14215-0229

Psychic Vibrations

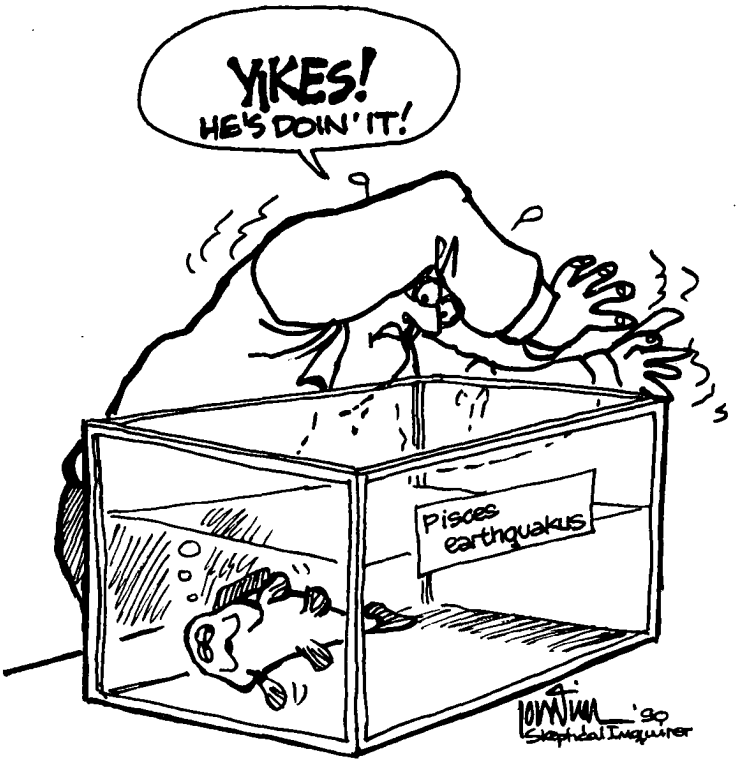


ROBERT SHEAFFER

The earthquake that caused so much destruction in Northern California last fall seemed to catch most "psychics" and other prognosticators napping. San Francisco "psychic astrologer" Terry Brill, who gets far more media attention than the dismal track record of her predictions warrants, reassured Californians in December 1988 that they need fear no major quake during 1989. In fact, on August 14, 1989, an article about Brill in the *San Francisco Chronicle* quoted her as saying: "I predicted last year before the New Year on KGO radio and TV and KCBS that there would be a 5.2 earthquake this year with some aftershocks, but I didn't see a major 7-pointer destroying the Bay Area." This was published exactly two months and three days before the magnitude 7.1 Loma Prieta earthquake struck the region on October 17, 1989, causing scores of deaths and billions of dollars in property damage, collapsing buildings and freeways, and closing the Bay Bridge.

In San Jose, geologist and unorthodox earthquake prognosticator Jim Berkland was placed on administrative leave from his job with Santa Clara County because his unauthorized (not to mention unfounded) predictions of additional earthquakes proved highly unsettling to quake-scarred residents as well as embarrassing to the county government. Berkland's earthquake predictions are based on the phases of the moon and the number of ads for runaway cats published in the *San Jose Mercury News*. (See this column, Summer 1988.) His procedure is refuted by two separate articles in *California Geology* (January 1981, moon phases; February 1988, missing cats) using proper statistical methods. He claims credit for predicting the October 17 earthquake, pointing out that it occurred during one of his "seismic windows," while neglecting to mention that his "seismic windows" are open longer than they are closed. What Berkland actually predicted was a quake of magnitude 3.5 to 6.0, occurring between October 14 and 21—the smaller quakes being, of course, quite common—which is not quite the same thing as predicting a 7.1-magnitude quake on October 17. To make matters worse, it was noted in the *Mercury News* that during the month before the quake the number of ads placed for lost pets "decreased the closer we drew to Oct. 17."

Farther south, in Orange County, well beyond the range of the quake's destructive effects, another famous prognosticator, Oscar the Fish, is said to have registered the effects of the big quake by swimming on his side. Oscar, a tropical fish with only one good eye, who used to live in the biology lab in the Corona del Mar High School, is said to have predicted 15 to 20 quakes in three years by swimming sideways, the Associated Press reported. Indeed, Oscar may even have given advance warning of the big



quake up north, but no one was present to heed it. Oscar had been sequestered in protective custody because of death threats; apparently some Californian who has been rattled by these quakes must believe that the quakes themselves can be prevented if the predictor-fish is not around to signal them. Ron Schnitger, a biology teacher at the high school, noted that just hours after the Northern California quake, Oscar "was sleeping with his good eye down," an event so rare "I've never seen that happen."

* * *

As many people know, Mensa is an organization of people whose high IQ's place them in the top 2 percent of the population. And, as most skeptics know, the longstanding infatuation of many Mensans with "psychic powers" and the New Age suggests that there is not necessarily a correlation between intelligence and critical thinking. One Mensan, Steve MacDonald, has come up with an unusual gimmick that singles him out from the herd of run-of-the-mill "psychics."

What does Steve MacDonald do? He has expanded his work as a palmist to include reading palms *over the telephone.* Before you say, "That's ridiculous!" remember that in the realm of the miraculous, *anything* can happen. Besides, if a good palmist can read the future from a news photo of a politician's wave (this column, Summer 1989), then an even better palmist should be able to do it all psychically, by remote viewing. MacDonald's technique was explained in the *Mensa Bulletin;* "You rub your palm over the mouthpiece of the

phone, then keep quiet and let him [MacDonald] talk about you. . . . Maybe he'll have you pan the phone around the room like a video camera, then comment on the art on your wall and the shoes off to your left." MacDonald's ability to perform what some would describe as "cold reading" has led to his appearance on several national television shows.

But the cleverest angle in MacDonald's approach to the paranormal is his choice of subjects: he reads palms in person only for *women*, specializing in attractive young women, and his very favorite subjects are those women enrolled at colleges of high academic repute. Steve is a single guy, and in the manner of Tom Lehrer's joke about the doctor who specialized in "diseases of the rich," MacDonald specializes in reading the palms of women who are young, brainy, and beautiful. In fact, speaking candidly, he said: "That was my original impetus for becoming a palm reader. It was a great way to meet women. I'm single and young; they're single and young. I get to hold their hands and look into their eyes and say nice things about them. They love it. . . . I find that women from upper-middle-class to upper-class backgrounds are intrinsically open to the paranormal. And I prefer reading people who are brilliant—who go to Harvard or Yale, who are going to become doctors and lawyers and journalists and such." Asked if it is harder to "read" men, MacDonald replied, "The only skeptics I've really encountered were men, and I just decided that I have no real reason to read men's palms." It's people like Steve MacDonald who demonstrate that Mensans really *are* pretty smart!

* * *

What is the truth behind the report of a flying saucer that Tass, the Soviet press agency, says landed in a city park in Voronezh, USSR? According to the Tass report, which was quickly published and commented upon worldwide, three children in their pre-teen years were playing in a park around 6:30 P.M. on the evening of September 27, 1989. This would have been around sunset, a time when Venus would have been shining brightly if the sky was clear. Suddenly they saw "a pink shining in the sky and then spotted a ball of deep red color" about 10 meters in diameter. Before long, they said, they could see a hatch opening, and the object landed. Out came two giant creatures three meters tall, dressed in silvery overalls, accompanied by a robot. "He didn't have a head, or shoulders either," one of the boys was reported to have said. "He just had a kind of hump. There he had three eyes, two on each side and one in the middle." The creatures were said by Tass to have taken "a short promenade about the park" before their departure.

Tass further reported that the creatures left behind two pieces of deep-red rock of a kind that "cannot be found on earth." However, the rock

was later identified as hematite, a common form of iron ore. Tass also quoted Genrich Silanov, head of the Voronezh Geophysical Laboratory, as saying that the UFO landing site had been identified "by means of bilocation," a popular Soviet form of "remote viewing." But when the Associated Press reached Silanov by telephone, he said: "Don't believe all you hear from Tass. We never gave them part of what they published." The phone connection was then abruptly cut off. We can't say for sure what is going on in Voronezh, but it would appear that in an era when *perestroika* makes it necessary for Soviet news organizations to compete, Tass may have learned how the *National Enquirer* became the largest-circulation newspaper in America.

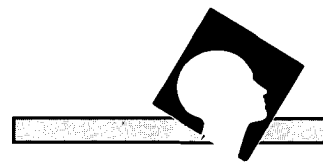
(A month later an official Soviet scientific commission concluded its investigation of the claims, finding no verifiable proof of a landing of aliens. Its radiometric, spectroscopic, and other studies failed to uncover "any anomaly either in the earth or surrounding vegetation" to support any of the claims. By then, of course, media interest had waned, and few news organizations gave the commission's verdict any prominence.)

Should anyone smugly insist that "it can't happen here," I remind you of the saucer that, according to Timothy Green Beckley, crashed in Manhattan's Central Park (this column, Winter 1990). Now another such incident has surfaced: The *New York Post* quotes a local UFO buff who claims that on the night of March 9, 1989, a busload of people passing Kissena Park in Queens were startled by the sight of a UFO touching down beside the duck pond. ■

Paranormal Pandemonium in the Soviet Union

PAUL KURTZ

Last summer, I was among the leaders of a dialogue with the Soviet Union held in Moscow.[1] Cosponsored by the International Humanist and Ethical Union and the Soviet Academy of Social Sciences, this dialogue included a delegation of 14 Western humanists. The main topic under discussion was the conflict between humanism and atheism, and the humanist defense of freedom of conscience against religious repression. Our delegation was struck by the tremendous growth of religiosity in the Soviet Union and the apparent shift in Soviet policy to permit religious freedom. Because there was also a noticeable increase in paranormal beliefs, I met with several Soviet scientists in order to establish regular communication between them and the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP). We are of course glad to cooperate with skeptics throughout the world who wish to use scientific methods to examine paranormal claims—although our initial enthusiasm about the growth of such groups in China was later dampened by the Chinese government's repression of the student movement.[2] We hope that the Soviet skeptical movement will continue to develop under Gorbachev.



Magical thinking is on the rise among the Soviet people. Will the formation of two skeptics groups provide an antidote?

Two skeptics groups are being established in the Soviet Union. These groups have expressed the intention of working closely with CSICOP and the SKEPTICAL INQUIRER in scientifically scrutinizing claims of the paranormal. One of these groups is associated with the influential Soviet journal *Science and Religion*, which has been publishing skeptical studies of paranormal claims in its pages and will now do

so by drawing on the resources of the worldwide skeptical movement. Among the topics they have examined are astrology, parapsychology, and faith-healing. *Science and Religion* has a circulation of more than 500,000 and is published by Znaniye (the Knowledge Society), a large publishing organization. The second group, sponsored by the Perspectiva Scientific Center in Kiev, is still in its formative stage but has requested and been granted permission to translate articles from the SKEPTICAL INQUIRER into Russian.

II

The need for skeptical inquiry in the Soviet Union is apparent to anyone who has followed the reports of psychic phenomena coming from that country—and our efforts are at best only a modest correction to what appears to be a paranormal tidal-wave. For many years stories about "paranormal breakthroughs" behind the Iron Curtain have been filtering through to the West. The book by Sheila Ostrander and Lynn Schroeder, *Psychic Discoveries Behind the Iron Curtain*,[3] has been much quoted; moreover, several Western paranormal buffs have warned of the "psychic arms race," claiming that because of the alleged military use of psychic powers the KGB had been spending large sums of money on paranormal research. For example, Russell Targ and Harold Puthoff, two American psychic researchers, claim that they have been conducting "remote viewing experiments" with Soviet colleagues with significant results. Most of these reports in our view are exaggerated and should be taken with a grain of salt. So far as scientific researchers associated with CSICOP have been able to ascertain, parapsychologists working with the military on both sides of the former "Iron Curtain" have not made any scientific breakthroughs. The pages of the SKEPTICAL INQUIRER have published reports of these skeptical conclusions.

The Soviet establishment for a long time looked askance at paranormal claims. They are contrary to Marxist ideology and so have been heavily censored. Nonetheless, it is clear that in the Gorbachev era of *glasnost* and *perestroika*, a veritable paranormal avalanche has descended on the Soviet Union. One science writer in Leningrad, a regular reader of the SKEPTICAL INQUIRER, has written to us saying that "paranormal pandemonium" has broken out in the Soviet Union and that he finds the SKEPTICAL INQUIRER a necessary antidote. In many ways the Soviet Union is aping the worst excesses of the sensationalist mass media in the West, which is often more interested in selling bizarre claims to a gullible public than in ascertaining the truth. This is no doubt the price that a freer society has to pay for freedom of expression.

Although the Marxist-Leninist regime for a long time frowned upon paranormal claims as "bourgeois" or "idealistic spiritualism," such reports are now common in the Soviet media. The popular morning television show "120 Minutes" (equivalent to the U.S. "Today" show) regularly features psychic healer Allan Chumak. *Izvestia* recently reported that "practically every city has its extrasensory healer." *Soviet Life*, in its January 1990 issue, featured a story about Chumak with the headline "Alan Chumak cures people through his television programs."

I caught Chumak on television one morning. An owlish middle-aged man with horn-rimmed glasses and a mane of white hair, he flings his hands about and peers into the camera. He has become something of a psychic super-

star and receives thousands of letters, telegrams, even bouquets of flowers, from his fans. Many attest to Chumak's "healing energy." His followers put tubes of cold cream and jugs of water in front of their television sets. Later they rub the cold cream on themselves or drink the water for its healing power. The producers of "120 Minutes" once took Chumak off the air, but after a mountain of mail protesting his removal poured into the station, they brought him back.

According to a story in the *Washington Post* (September 4, 1989) Chumak sometimes holds séances outside his apartment house in Moscow, which people from all over the country attempt to visit.

He also claims to have scattered clouds in Kaunas, Lithuania, and is thinking of using his powers to prevent fruits and vegetables from rotting, thus helping to solve the Soviet Union's food crisis. Another popular healer is hypnotist Anatol Kashpirovsky, from Kiev, who claimed on television to have helped a woman lose 200 pounds. He maintains he can heal broken limbs, scars, blindness, even AIDS, by means of parasuggestion.

The simple question that a skeptic has to pose is whether any of these claims have been corroborated—whether those who claim to have been healed have been diagnosed before and after the fact. Efforts to verify such powers among U.S. healers have had negative results.

Astrology has apparently been revived in the Soviet Union. The December 1989 issue of *Soviet Life* carries an article on astrology. The editor states that "until recently, astrology was considered a pseudoscience and people who consulted their horoscopes were considered foolish. Nevertheless, a Soviet School of Astrology . . . does exist and a whole number of talented astrologers are coming to the fore."

During my visit I noted astrologers selling horoscopes on Arbut Street, each of them surrounded by dozens of people. Recently, *Moskovskaya Pravda*, the official publication of the Moscow Communist Party, began publishing an astrology column, mimicking Western newspapers. The Soviet government for a long time considered astrology a pseudoscience and censored astrological predictions from publication. Yet the author of the new astrology column is extolled as "a specialist in the arts of white, black, and other magic" and "a master of the magical sciences." The first column to appear claimed that the conjunction of Saturn with the Year of the Snake was a good omen and that 1989 would be favorable for the Soviet environment. And *Komsomolskaya Pravda*, the party newspaper of Komsomolsk, recently announced that the Abominable Snowman had been caught stealing apples in the Saratov region on the Volga.

There has also been a renewed interest in UFO reports in the Soviet Union. According to Professor Vladimir Azhazhei, of Moscow State University, UFOlogy had been considered a "bourgeois science" by Soviet authorities, but now, he said, it is "growing like mushrooms" and some 50 groups of amateur UFOlogists now exist.

According to a story in *Pravda* (October 12, 1989), farmers in the Chernovtsky region said that on July 16, 1989, they had seen "huge headless figures traveling as though on motorcycles."

Last summer a Tass story in *Socialist Industry* reported the sighting of a UFO by Lyubov Medvedev, a dairy worker from the Perm region of the U.S.S.R. According to her, the alien

creature "resembled a man, but was taller than average with short legs . . . and had only a small knob instead of a head."

The Perm Commission on Abnormal Phenomena (PCAP) went on an expedition to an "abnormal zone." Strange phenomena began on July 29, 1989. They reported that some members of the party experienced a "sensation of pressure on their heads as though they were wearing a hat too tight." Aleksander Goryunkhin conducted an experiment in which a mechanical watch was placed inside a thermos bottle and left for a length of time in a zone that Emil Bachurin, a Perm geologist, considered intensive. "The watch lost five hours and 41 minutes in the course of the experiment." (Randi: Where are you?) Members of the team offered various hypotheses to explain these phenomena. Bachurin believes that "telepathic contact" with extraterrestrials could have accounted for some of them.

III

A recent UFO flap vividly demonstrated the outbreak of paranormal beliefs and the need for scientific expertise. There were widely reported news stories on October 9 of last year about the reputed landing of extraterrestrial visitors in Voronezh, a city 300 miles southeast of Moscow. According to the Associated Press story, Tass, the official Soviet news agency, reported the following:

> Scientists have confirmed that an unidentified flying object recently landed in a park in the Russian city of Voronezh. . . . They have also identified the landing site and found traces of aliens who made a short promenade around the park.

The Tass dispatch claimed that residents of Voronezh saw a large shining ball or disc hovering over the park. It reported that the UFO landed and that three creatures emerged accompanied by a small robot. "The aliens were three or even four meters tall (9 to 12 feet), but with very small heads." According to Tass, onlookers were "overwhelmed with a fear that lasted for several days." Tass also quoted Genrikh Silanov, head of the Voronezh Geophysical Laboratory, as saying that scientists investigating the area found a 20-yard depression with four deep dents and two pieces of unidentified rock. "At first glance," said Silanov, "they look like sandstone of a deep red color. However, mineralogical analysis has shown that the substance cannot be found on earth." Silanov was further quoted as saying that "additional tests are needed to reach a more definite conclusion." According to Tass, Silanov said that a "biolocation" method of tracking was used to confirm the landing site and the paths taken by the aliens. No date for the sighting was given.

The CSICOP office in Buffalo was immediately bombarded by the press inquiring about the Tass dispatch: This included calls from AP, CNN, ABC Radio, and dozens of other media in the United States; CBC in Canada; the *Times*, the *Telegraph*, and the BBC in London; and many others. Barry Karr, our Executive Director, asked me to deal with the many calls that were coming in.

"What does CSICOP make of this report?" was the usual query. "If Tass reports this, mustn't there be something to it?" Calls to Tass by the media had indicated that Tass was dead serious and that this was not an April Fool's hoax.

"We have not had a chance to investigate the story," I responded.

And I was curious. "Do you accept other stories from Tass as true?" I

asked.

"No," they replied, "of course not."

"Then," I said, "why accept this without further corroboration?"

They replied, "But these reports quote scientists and seem to be authentic."

I said we would try to look into the matter and if we uncovered anything we would get back to them.

I immediately called Philip J. Klass, our veteran UFO investigator, who heads CSICOP's UFO Subcommittee. Phil replied that he was hard at work on a story for *Aviation News & Space Technology*, had a deadline to meet, and did not then have the time to investigate the case.

"Look," said Klass, "if aliens had really landed in the Soviet Union, as reported, and if this has been confirmed by Soviet scientists, it would be a momentous event in human history. And," he quipped "President Gorbachev should immediately call a press conference and proudly announce that at a time when everyone seems to want to leave the Soviet Union, at least someone was attempting to get into it!"

I next called Jim Oberg, a member of CSICOP's UFO Subcommittee who works for NASA. Oberg is one of the leading experts on Soviet satellite launches and UFO reports. He said that he would check the story with his contacts in the Soviet Union. I had tried to call our acquaintances there, but as often happens when telephoning the Soviet Union, the circuits were busy and it was impossible to get through.

Meanwhile, a Tass report published in the newspaper *Sovetskaya Kultura* identified the alleged witnesses of the alien landings: three schoolchildren, two boys and a girl—Vasya Surin, Zhenya Blinov, and Yuliya Sholokhova. They were playing in a park at 6:30 P.M. on September

27, when they "saw a pink object shining in the sky, and then spotted a ball of deep red color" about 10 meters in diameter. A crowd gathered and reportedly saw a hatch opening and "humanoids" in the lower part of the ball. The creatures had "discs on their chests." "bronze boots," and were dressed in "silvery overalls."

Tass said that one of the boys began to scream, but was paralyzed by a stare from the aliens' shining eyes. After disappearing briefly the humanoids returned and one directed a tubelike gun at a 16-year-old boy, who vanished but reappeared after the aliens departed. Telephone interviews with Vladimir Levedev, the Tass correspondent in Voronezh, said that he had conversations with dozens of witnesses and experts who had talked with the children and investigated the evidence. He added that there had been three sightings of UFO landings in Voronezh between September 23 and September 29. Although he had not witnessed any of the strange events himself, he had visited the site

and could see traces of the landing—"holes of a clear shape that resembled the footprints of an elephant!"

What should be made of these accounts? Levedev was apparently indignant when Western correspondents questioned the seriousness of the story.

The *New York Times* contacted Vladimir A. Moiseyev, director of the regional health department, who said despite claims that there was widespread fear in Voronezh, none of the witnesses had asked for medical help. His department planned to examine the children, but still had not done so weeks after the incident.

I had asked Jim Oberg to examine the tracking data available at NASA of all rocket launches and space debris over the Soviet Union to see if there was a possible misidentification that could explain the sighting. He reported that there was no evidence of anything nearby to easily explain the phenomena.

Who were the scientists in the Soviet Union who had studied the evidence? They included members of the "Voronezh Amateur Section for the Study of Abnormal Phenomena," who, according to *Socialist Industry* (October 13, 1989), apparently visited the site a week after the alleged event. The method of "biolocation" they used was "a form of ESP dowsing"—whose effectiveness most Westerners question.

What about the sensational claims made by Genrikh Silanov of the Voronezh Geophysical Lab that the two pieces of rock "were not something found on Earth"? In a subsequent story Silvanov reported that the sandstone was indeed very common in the Soviet Union and was actually a form of hematite. In a follow-up telephone interview with the Associated Press (October 11), Silanov replied in exasperation: "Don't believe all you hear from Tass. We never gave them part of what they published."

When *Socialist Industry* later (October 11) asked Silanov and Yuluzutzev, a member of his department, "What about the newspaper report that the UFO landing has been confirmed as a fact by specialists?" they replied, "We protest this wording!"

At this point we are unable to say definitively what really occurred. But there is reason to be highly skeptical that there was a close encounter with extraterrestrials. There were apparently two separate incidents. First, some people claimed to have witnessed a strange object in the sky. This object has not yet been identified. Second, three children reported an alien encounter. But they were the *only* witnesses to be found.

James Oberg, after he had made contact with the Soviets, reported to us that Vladimir Posner, the well-known correspondent for the Soviet Union's evening news program "Vremy" ("Truth"), had sent a film crew to Voronezh, apparently in response to the international furor that the reports had raised. But they could find no other "witnesses" except the children. They ended their report on a very skeptical note. I was able to catch this film clip when it was later aired on CNN News. It suggested an alternative explanation: that the creative imagination of young children was perhaps at work. If so, this is not unlike many UFO cases in the United States.

The French Press Agency issued the following report on October 28:

> . . . There exists no verifiable proof of a landing by aliens in Voronezh.
>
> Sixteen radiometric analyses, 19 checks of the ground, 9 tests for micro-organisms, and 20 spectro-chemical measurements failed to uncover "any anomaly either in the earth or surrounding vegetation"

that might indicate the landing of an unidentified flying object, the commission reported.

"Igor Sarotsev, vice-rector of the University of Voronezh and chairman of the commission, said that the presence of a larger than normal quantity of the radioactive isotope cesium in the area of the alleged sighting did not constitute proof of a landing.

After Chernobyl, this kind of phenomenon has been found in many areas," [Saratsev said]. . . .

The official commission report was bad news for "Stalker," a new cooperative or private business which opened up after the Voronezh sightings.

The company has set up tours of Voronezh, which it calls the "land of the aliens." A 59 rubles ($95) fee covers transportation, loding, and a visit to the landing site. Another two rubles ($3) provides a conference with talks by specialists and witnesses.

But the fledgling enterprise warns clients: "We cannot guarantee a meeting with aliens, for that is a matter of chance."

IV

The upsurge of reports of paranormal phenomena in the Soviet Union, especially considering its present political, cultural, and economic situation, should be treated with caution.

In the pre-Gorbachevian era, the Soviet Union was a closed society. Rumors circulated among the populace and often spread like swampfire. Moreover, given the hegemony of Marxist-Leninist-Stalinist ideology, any kind of independence of thought or skepticism about the prevailing official dogma was considered dangerous. With such thinking bottled up for so long, perhaps the critical faculties of the Soviets have atrophied.

In an Op Ed piece in *Moscow*

OLIPHANT THE OREGONIAN
GREETINGS... WE'RE LOST... CAN YOU DIRECT US TO THE NATIONAL ENQUIRER?
TASS SOVIET NEWS AGENCY
ALIEN AUTOMOBILE ASSOCIATION MAP OF EARTH

Printed by permission of *Tribune Media* Services.

News (vol. 44, no. 13, November 5-12, 1989), Yevgeiya Albats deplores the influence of Chumak and Kashpirovsky, who under government sponsorship claim extraordinary psychic powers. A lot of people accept this nonsense, says Albats, because the Russian people have been so accustomed to "listening with our eyes closed" to official propaganda. They have only transferred their gullibility from political leaders to paranormal healers, she says.

Some commentators on the Soviet scene have provided an even more cynical interpretation of this phenomenon. *Time* (October 23, 1989) quotes a disillusioned party member who views the state sponsorship of psychic and UFO claims as a new opiate for the masses: "They've been feeding us rubbish about the dreams of communism for years, and we now see they were lying. At least this gives us something new to dream about." Has the Soviet leadership, unable to supply bread and other consumer goods to its populace, thus decided to substitute circuses? I doubt that this is a conscious policy decision.

The resurgence of belief in the paranormal in the Soviet Union may simply mean that in this freer society the "transcendental temptation" has reasserted itself and that attempts to keep it pent up have failed. I have suggested that there is a profound hunger in the human breast for plumbing the mysterious depths of reality, and a tendency to believe in the incredible—the supernatural, occult, and paranormal. As belief in the metaphysical utopian ideal—the dialectical process—declines in the Soviet Union with the shattering of its official ideological view, new metaphysical ideas filter in.

No doubt the chief defense against magical thinking is the use of critical intelligence. Whether the development of two skeptics groups in the Soviet Union will help to provide at least some critical, scientific antidote and some balance to the rising level of paranormal nonsense is perhaps doubtful. After all, in the United States, a relatively free society, the paranormal upswing continues unabated—given the domination of the public imagination by largely unchallenged psychic claims, on the one hand, and powerful international media conglomerates promoting paranormal claims as true, on the other (e.g., Time-Life's *Mysteries of the Unknown* series). As the Soviet Union begins to enter into the free world can we expect any less of them? Perhaps large segments of the Soviet population getting caught in the paranormal quagmire is the inevitable result?

Notes

1. For a fuller account of this dialogue see my "Militant Atheism vs. Freedom of Conscience," FREE INQUIRY, Fall 1989.

2. Paul Kurtz, "CSICOP Visits China," SKEPTICAL INQUIRER, Summer 1988.

3. Sheila Ostrander and Lynn Schroeder, *Psychic Discoveries Behind the Iron Curtain.* New York: Bantam Books, 1971.

Paul Kurtz is chairman of CSICOP and professor of philosophy at the State University of New York at Buffalo.

Why We Need To Understand Science

CARL SAGAN

As I got off the plane, he was waiting for me, holding up a sign with my name on it. I was on my way to a conference of scientists and television broadcasters, and the organizers had kindly sent a driver.

"Do you mind if I ask you a question?" he said as we waited for my bag. "Isn't it confusing to have the same name as that science guy?"

It took me a moment to understand. Was he pulling my leg? "I *am* that science guy," I said. He smiled. "Sorry. That's my problem. I thought it was yours too." He put out his hand. "My name is William F. Buckley." (Well, his name wasn't *exactly* William F. Buckley, but he did have the name of a contentious television interviewer, for which he doubtless took a lot of good-natured ribbing.)

As we settled into the car for the long drive, he told me he was glad I was "that science guy"—he had so many questions to ask about science. Would I mind? And so we got to talking. But not about science. He wanted to discuss UFOs, "channeling" (a way to hear what's on the minds of dead people—not much it turns out), crystals, astrology. . . . He introduced each subject with real enthusiasm, and each time I had to disappoint him: "The evidence is crummy," I kept saying. "There's a much simpler explanation." As we drove on through the rain, I could see him getting glummer. I was attacking not just pseudoscience but also a facet of his inner life.

Ignorance of science threatens our economic well-being, our national security, and the democratic process. We must do better.

And yet there is so much in real science that's equally exciting, more mysterious, a greater intellectual challenge—as well as being a lot closer to the truth. Did he know about the molecular building blocks of life sitting out there in the cold, tenuous gas between the stars? Had he heard of the footprints of our ancestors found in four-million-year-old volcanic ash? What about the raising of the Himalayas when India went crashing into Asia? Or how viruses subvert cells, or the radio search for extraterrestrial intelligence, or the ancient civilization of Ebla? Mr. "Buckley"—well-spoken, intelligent, curious—had heard virtually nothing of modern science. He *wanted* to know about science. It's just that all the science got filtered out before it reached him. What society permitted to trickle through was mainly pretense and confusion. And it had never taught him how to distinguish real science from the cheap imitation.

All over America there are smart, even gifted, people who have a built-in passion for science. But that passion is unrequited. A recent survey suggests that 94 percent of Americans are "scientifically illiterate."

A Prescription for Disaster

We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology. This is a clear prescription for disaster. It's dangerous and stupid for us to remain ignorant about global warming, say, or ozone depletion, toxic and radioactive wastes, acid rain. Jobs and wages depend on science and technology. If the United States can't manufacture, at high quality and low price, products people want to buy, then industries will drift out of the United States and transfer a little prosperity to another part of the world. Because of the low birthrate in the sixties and seventies, the National Science Foundation projects a shortage of nearly a million professional scientists and engineers by 2010. Where will they come from? What about fusion, supercomputers, abortion, massive reductions in strategic weapons, addiction, high-resolution television, airline and airport safety, food additives, animal rights, superconductivity, Midgetman vs. rail-garrison MX missiles, going to Mars, finding cures for AIDS and cancer? How can we decide national policy if we don't understand the underlying issues?

I know that science and technology are not just cornucopias pouring good deeds out into the world. Scientists not only conceived nuclear weapons; they also took political leaders by the lapels, arguing that *their* nation—whichever it happened to be—had to have one first. Then they arranged to manufacture 60,000 of them. Our technology has produced thalidomide, CFCs, Agent Orange, nerve gas, and industries so powerful they can ruin the climate of the planet. There's a *reason* people are nervous about science and technology.

And so the image of the mad scientist haunts our world—from Dr. Faust to Dr. Frankenstein to Dr. Strangelove to the white-coated loonies of Saturday morning children's television. (All this doesn't inspire budding scientists.) But there's no way back. We can't just conclude that science puts too much power into the hands of morally feeble technologists or corrupt, power-crazed politicians and decide to get rid of it. Advances in medicine and agriculture have saved more lives than have been lost in all the wars in history. Advances in transportation, communication, and entertainment have transformed the world. The sword of science is double-

edged. Rather, its awesome power forces on all of us, including politicians, a new responsibility—more attention to the long-term consequences of technology, a global and transgenerational perspective, an incentive to avoid easy appeals to nationalism and chauvinism. Mistakes are becoming too expensive.

Science is much more than a body of knowledge. It is a way of thinking. This is central to its success. Science invites us to let the facts in, even when they don't conform to our preconceptions. It counsels us to carry alternative hypotheses in our heads and see which ones best match the facts. It urges on us a fine balance between no-holds-barred openness to new ideas, however heretical, and the most rigorous skeptical scrutiny of everything—new ideas *and* established wisdom. We need wide appreciation of this kind of thinking. It works. It's an essential tool for a democracy in an age of change. Our task is not just to train more scientists but also to deepen public understanding of science.

How Bad Is It? Very Bad

"It's Official," reads one newspaper headline. "We Stink in Science." Less than half of all Americans know that the earth moves around the sun and takes a year to do it—a fact established a few centuries ago. In tests of average 17-year-olds in many world regions, the United States ranked dead last in algebra. On identical tests, the U.S. kids averaged 43 percent and their Japanese counterparts 78 percent. In my book 78 percent is pretty good—it corresponds to a C+, or maybe even a B–; 43 percent is an F. In a chemistry test, students in only two of thirteen nations did worse than the United States. Compared to us, Britain, Singapore, and Hong Kong were so high they were almost off-scale, and 25 percent of Canadian 18-year-olds knew just as much chemistry as a select 1 percent of American high school seniors (in their secondary chemistry course, and most of them in "advanced" programs). The best of 20 fifth-grade classrooms in Minneapolis was outpaced by every one of

20 classrooms in Sendai, Japan, and 19 out of 20 in Taipei, Taiwan. South Korean students were far ahead of American students in all aspects of mathematics and science, and 13-year-olds in British Columbia (in western Canada) outpaced their U.S. counterparts across the board (in some areas they did better than the Koreans). Of the U.S. kids, 22 percent say they dislike school; only 8 percent of the Koreans do. Yet two-thirds of the Americans, but only a quarter of the Koreans, say they are "good at mathematics."

Why We're Flunking

How do British Columbia, Japan, Britain, and Korea manage so much better than we do?

During the Great Depression, teachers enjoyed job security, good salaries, respectability. Teaching was an admired profession, partly because learning was widely recognized as the road out of poverty. Little of that is true today. And so science (and other) teaching is too often incompetently or uninspiringly done, its practitioners, astonishingly, having little or no training in their subjects—sometimes themselves unable to distinguish science from pseudoscience. Those who do have the training often get higher-paying jobs elsewhere.

We need more money for teachers' training and salaries, and for laboratories—so kids will get hands-on experience rather than just reading what's in the book. But all across America, school-bond issues on the ballot are regularly defeated. U.S. parents are much more satisfied with what their children are learning in science and math than are, say, Japanese and Taiwanese parents—whose children are doing so much better. No one suggests that property taxes be used to provide for the military budget, or for agriculture, or for cleaning up toxic wastes. Why just for education? Why not support it from general taxes on the local and state levels? What about a special education tax for those industries with special needs for technically trained workers?

American kids don't do enough schoolwork. The average high school student spends 3.5 hours a week a week on homework. The total time devoted to studies, in and out of the classroom, is about 20 hours a week. Japanese *fifth*-graders average 33 hours a week.

But most American kids aren't stupid. Part of the reason they don't study hard is that they've received few tangible benefits when they do. Competency (that is, actually knowing the stuff) in verbal skills, mathematics, and science these days doesn't increase earnings for average young men in their first eight years out of high school—many of whom take service rather than industrial jobs.

In the productive sectors of the economy, though, the story is different. There are furniture factories, for example, in danger of going out of business because few entry-level workers can do simple arithmetic. A major electronics company reports that 80 percent of its job applicants can't pass a *fifth*-grade math test. The United States already is losing some $25 billion a year (mainly in lost productivity and the cost of remedial education) because workers, to too great a degree, can't read, write, count, or think. Parents should know that their children's livelihoods may depend on how much math and science they know. Now, while the kids are in school, is the time for them to learn. Parents might encourage their schools to offer—and their kids to take—comprehensible, well-taught advanced science courses. They might

also limit the amount of mind-numbing television their children watch.

What We Can Do

Those in America with the most favorable view of science tend to be young, well-to-do, college-educated white males. But three-quarters of new American workers between now and 2001 will be women, nonwhites, and immigrants. Discriminating against them isn't only unjust, it's also self-defeating. It deprives the American economy of desperately needed skilled workers.

Black and Hispanic students are doing better in standardized science tests now than in the late 1960s, but they're the only ones who are. The average math gap between white and black U.S. high school graduates is still huge—two to three grade levels; but the gap between white U.S. high school graduates and those in, say, Japan, Canada, Great Britain, or Finland is more than *twice* as big. If you're poorly motivated and poorly educated, you won't know much—no mystery here. Suburban blacks with college-educated parents do just as well in college as suburban whites with college-educated parents. Enrolling a poor child in a Head Start program doubles his or her chances to be employed later in life; one who completes an Upward Bound program is four times as likely to get a college education. If we're serious, we know what to do.

What about college and university? There are obvious steps similar to what should be done in high schools: salaries for teachers that approach what they could get in industry; more scholarships, fellowships, and laboratory equipment; laboratory science courses required of everyone to graduate; and special attention paid to those traditionally steered away from science. We should also provide the financial and moral encouragement for academic scientists to spend more time on public education—lectures, newspaper and magazine articles, television appearances. This requires scientists to make themselves understandable and fun to listen to. To me, it seems strange that some scientists, who depend on public funding for their research, are reluctant to explain to the public what it is that they do. Fortunately, the number of scientists willing to speak to the public—and capably—has been increasing each year. But there are not yet nearly enough.

"Why in all America is there no TV drama that has as its hero someone devoted to figuring out how the Universe works?"

Virtually every newspaper in America has a daily astrology column. How many have a daily science column? When I was growing up, my father would bring home a daily paper and consume (often with great gusto) the baseball box scores. There they were, to me as dry as dust, with obscure abbreviations (W, SS, SO, W-L, AB, RBI), but they spoke to him. Newspapers everywhere printed them. I figured maybe they weren't too hard for me. Eventually I got caught up in the world of baseball statistics. (I know it helped me in learning decimals.)

Or take a look at the financial pages. Any introductory material? Explanatory footnotes? Definitions of abbreviations? Often there's none. It's sink or swim. Look at those acres of

"I'm haunted by the vision of a generation of Americans unable to distinguish reality from fantasy, . . . unequipped even to frame the right questions or to recognize the answers."

statistics! Yet people voluntarily read the stuff. It's not beyond their ability. It's only a matter of motivation. Why can't we do the same with math, science, and technology?

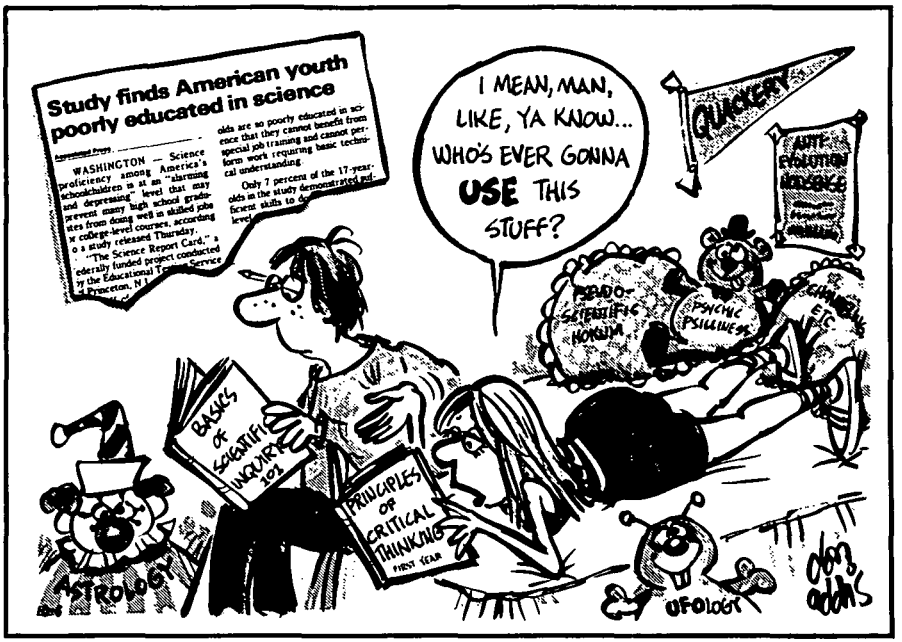
By far the most effective means of raising interest in science is television. There's lots of pseudoscience on television, a fair amount of medicine and technology, but hardly any science—especially on the three big commercial networks, whose executives think science programming means rating declines and lost profits, and nothing else matters. Why in all America is there no television drama that has as its hero someone devoted to figuring out how the universe works?

Stirring projects in science and technology attract and inspire youngsters. The number of science Ph.D.'s peaked around the time of the Apollo program and declined thereafter. This is an important potential side-effect of such projects as sending humans to Mars, the Superconducting Supercollider to explore the fine structure of matter, and the program to map all human genes.

Every now and then, I'm lucky enough to teach a class in kindergarten or the first grade. Many of these children are curious, intellectually vigorous, ask provocative and insightful questions, and exhibit great enthusiasm for science. When I talk to high school students, I find something different. They memorize "facts." But, by and large, the joy of discovery, the life behind those facts, has gone out of them. They're worried about asking "dumb" questions; they're willing to accept inadequate answers; they don't pose follow-up questions; the room is awash with sidelong glances to judge, second by second, the approval of their peers. Something has happened between first and twelfth grade, and it's not just puberty. I'd guess that it's partly peer pressure *not* to excel (except in sports); partly that society teaches short-term gratification; partly the impression that science or math won't buy you a sports car; partly that so little is expected of students; and partly that there are so few role models for intelligent discussion of science and technology or for learning for its own sake.

But there's something else: Many adults are put off when youngsters pose scientific questions. Children ask why the sun is yellow, or what a dream is, or how deep you can dig a hole, or when is the world's birthday, or why we have toes. Too many teachers and parents answer with irritation or ridicule, or quickly move on to something else. Why adults should pretend to omniscience before a five-year-old, I can't for the life of me understand. What's wrong with admitting that you don't know? Children soon recognize that somehow this kind of question annoys many adults. A few more experiences like this, and another child has been lost to science.

There are many better responses. If we have an idea of the answer, we could try to explain. If we don't, we could go to the encyclopedia or the library. Or we might say to the child: "I don't know the answer. Maybe no one knows. Maybe when you grow



Don Addis, *St. Petersburg Times*

up, you'll be the first to find out."

But mere encouragement isn't enough. We must also give the children the tools to winnow the wheat from the chaff. I'm haunted by the vision of a generation of Americans unable to distinguish reality from fantasy, hopefully clutching their crystals for comfort, unequipped even to frame the right questions or to recognize the answers. I want us to rescue Mr. "Buckley" and the millions like him. I also want us to stop turning out leaden, incurious, unimaginative high school seniors. I think America needs, and deserves, a citizenry with minds wide awake and a basic understanding of how the world works.

Public understanding of science is more central to our national security than half a dozen strategic weapons systems. The submediocre performance of American youngsters in science and math, and the widespread adult ignorance and apathy about science and math, should sound an urgent alarm.

Carl Sagan teaches and does research at Cornell University. His Emmy and Peabody Award-winning television science series COSMOS *has been seen in more than 60 countries by 400 million people. Videocassettes of all 13 episodes are now available. The accompanying book,* Cosmos, *is the best-selling science book ever published in the English language. This article originally appeared in* Parade Magazine. *Copyright ©1989 by Carl Sagan.*

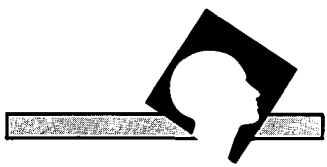
The Crisis in Pre-college Science and Math Education

GLENN T. SEABORG

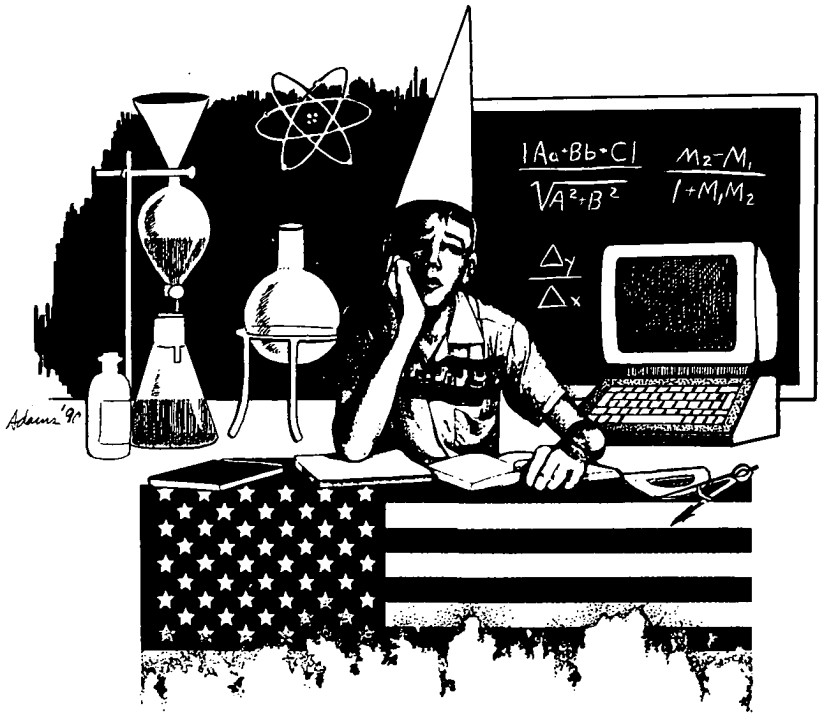
Our nation is at risk. Our once unchallenged preeminence in commerce, industry, science and technological innovation is being overtaken by competitors throughout the world. . . . If an unfriendly power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. . . . We have, in effect, been committing an act of unthinking, unilateral educational disarmament.

These are the dramatic opening lines of the report "A Nation at Risk: The Imperative for Educational Reform" that the members of our National Commission on Excellence in Education handed to President Ronald Reagan in a ceremony at the White House in April 1983.

The Commission was created in August 1981 by then-Secretary of Education Terrel H. Bell, whom the Seaborg Center is very fortunate to have as chairman of its National Advisory Council. The Commission was charged with reporting on the quality of education in our country and making positive recommendations for remedying our deficiencies. What we learned in the course of our 20-month study and at public hearings across the country was so appalling that we decided to make our report



"This country cannot afford another generation of students who are unprepared to respond to the worldwide growth of scientific knowledge and technological power."



as dramatic as possible to draw attention to these serious problems and to reach maximum readership.

We succeeded in drawing almost unprecedented attention from educators, parents, public, and press. It is now apparent that the educational crisis and the urgent need for reform are broadly perceived as being a top priority. In the last presidential election George Bush made education an important campaign issue, thus putting the need for educational reform at the top of the national agenda. Last year President Bush reaffirmed his commitment to improving education when he visited the exhibits of the 40 Westinghouse Science Talent Search winners. This was the first time in the 48-year history of this competition that the president of the United States made a tour of the students' exhibits. In his remarks President Bush encouraged the efforts of programs like the Science Talent Search and said that he believed that these efforts, aided by the federal government, would result in significant changes in our educational system. He said that "as a nation, we have no natural resource more precious than our intellectual resources" and that he wanted to make science education one of the most important investments for the future of our nation.

So, how bad is the crisis in education in this country?

Since the "Nation at Risk" report, there have been dozens of other reports, by a wide spectrum of American organizations, emphasizing and deploring the state of pre-college education in science and math in the United States today. (See box.) These reports indicate that, while some progress has been made, there is still much work to be done to resolve the crisis in education.

In a recent survey conducted in six nations, 13-year-old American school-

children placed last in mathematics, behind South Korea, Spain, Great Britain, Ireland, and Canada. Moreover, the high-ranking Koreans surpassed the Americans by a wide margin: 78 percent of Korean 13-year-old students have the ability to use intermediate math skills to solve two-step problems but only half as many Americans could do so. Moreover, 40 percent of the Korean children can understand and apply mathematical concepts, but less than 10 percent of American schoolchildren can do so.

While most American 13-year-old schoolchildren can add, subtract, multiply, and divide, they are seriously lacking in cognitive skills, such as reasoning, investigating, and estimating. However, many entry-level jobs today are demanding workers with high-order, more sophisticated skills for which these students are not being adequately prepared.

In another report, released in September 1988, results showed that, compared with students from 13 other countries, twelfth-grade American students scored in the lower range on mathematics achievement tests. In geometry, American students did only slightly better than those in Hungary and Thailand; in algebra, only Thailand was worse; and the United States ranked last in calculus. Overall the American students obtained only half as many points on tests as those from Hong Kong, the highest-ranking group.

In science, the statistics are just as grim. In the same six-nation survey of 13-year-old schoolchildren, Americans again scored below average. Ironically, the United States came in behind Spain, which does not have a reputation for being in the forefront in science and technology. Again, as in math, when the 13-year-olds were tested for conceptual understanding, interpretation, and application of what they had learned, the performance of the American schoolchildren dropped dismally. At the highest level, 33 percent of Koreans had the skills to apply scientific principles, while only 12 percent of Americans could do so.

In a 13-nation survey of twelfth-graders, American students scored thirteenth in biology, eleventh in chemistry, and ninth in physics.

In report after report, American students consistently score in the lower end of the scale. It is evident that too many students are leaving our schools without adequate skills to be full participants in our increasingly technologically oriented society. By 1993, those 13-year-old students, who today are performing so poorly in math and science, will be voting and entering the work force—the scientific and industrial leadership of our nation will be in their hands.

Already it is evident that the industrial supremacy of our nation is being seriously threatened. Currently only about 6 percent of American adults are scientifically literate. This greatly diminishes their productivity in a more technologically demanding workplace.

Scientific illiteracy also affects the ability to function effectively as citizens and the ability to play an informed role in social and political decision-making on issues with scientific or technological content, such as those involving nuclear power, acid rain, the ozone layer, genetic engineering, chemical warfare, and so forth. The vitality of a democracy assumes a certain "core of knowledge," shared by everyone, that serves as a unifying force.

There can be no doubt that scientific literacy, a solid understanding of science and mathematics, is now more important than ever before—there is irrefutable evidence that the skills of our youth are not only failing to keep

A Litany of Concern

Here are some of the recent reports that have documented and deplored the state of pre-college science and math education in the United States today.

Everybody Counts: A Report to the Nation of the Future of Mathematics Education
National Research Council, National Academy Press, Washington, D.C. (1989)

The Forgotten Half: Pathways to Success for America's Youth and Young Families
The William T. Grant Foundation Commission on Work, Family and Citizenship (November 1988)

1988 Education Indicators
Joyce D. Stern, editor; Marjorie O. Chandler, associate editor. U.S. Department of Education (1988)

Moral Education and Character
Ivor Pritchard, editor. U.S. Department of Education (September 1988)

American Education: Making It Work
"A Report to the President and the American People," William J. Bennett (April 1988). This is a follow-up report assessing the progress that has been made in education since 1983, when "A Nation at Risk" was published.

The Forgotten Half: Non-College Youth in America
The William T. Grant Foundation Commission on Work, Family and Citizenship (January 1988)

Women and Minorities in Science and Engineering
National Science Foundation (January 1988)

The Condition of Education: Postsecondary Education
Joyce D. Stern, editor; Marjorie O. Chandler, associate editor. U.S. Department of Education (1988)

Undergraduate Science, Mathematics and Engineering Education
National Science Board, NSB Task Committee on Undergraduate Science and Engineering Education (March 1986)

up with the increasing demands—but actually are deteriorating at an alarming rate.

This country cannot afford another generation of students who are unprepared to respond to the worldwide rapid growth of scientific knowledge and technological power. The nation's future depends on them. Therefore, we must improve general science and math education for all our young.

The task of guiding the intellectual (and often social) development of our young is all-important. We must begin to recognize teachers' contributions not only by adequately compensating them for their service, but also by giving them the due respect that would motivate them to refine their skills and expand their knowledge to

meet future challenges. While some teachers are eminently qualified, a significant number of them have little background in science or mathematics or have not had any involvement with these subjects in many years and have simply lost touch with changes in their fields.

According to a 1985-1986 national survey supported by the National Science Foundation and released in 1988, many science and math teachers feel they lack adequate training and are not qualified to teach. Indeed, the study showed that only about one in three elementary science teachers has taken a college chemistry course and only one in five teachers has taken a college physics course. While 82 percent of them felt they were very well qualified to teach reading, only 66 percent felt they could teach math. In the science disciplines, fewer than one-third of the teachers felt very well qualified to teach the life sciences and only 15 percent felt very well qualified to teach the physical or earth and space sciences.

At the high school level, less than one in three teachers had included earth and space sciences in their undergraduate curriculum. The report also states that "more than half of all secondary science teachers have never had a college computer-science course and almost half have had no college calculus."

However, most science and math teachers feel that they would enjoy teaching these subjects if they had adequate preparation. Whatever their situation, these teachers need opportunities to upgrade their math and science teaching skills. Thus there is not only a need to increase the available pool of qualified math and science teachers, but there is also a need to enhance the capabilities of those now teaching these subjects.

The Lawrence Hall of Science is an institution committed to improving the quality of mathematics and science instruction for pre-collegiate students. For more than two decades the Hall has dedicated its superior resources as part of the University of California to the continuing battle against educational mediocrity.

The Lawrence Hall of Science, which I serve as chairman, was conceived in 1958 and built in 1968 as a memorial to Ernest O. Lawrence, the University of California's first Nobel Laureate and inventor of the cyclotron. As a dynamic research and educational institution, the Hall continues today, 22 years after its dedication in 1968, to focus its efforts on three main objectives:

- To improve the quality of mathematics and science instruction for the benefit of pre-collegiate students through the development of innovative math and science courses and accompanying curriculum materials and teacher training services.
- To augment the mathematics and science instruction provided by our schools by offering special mathematics and science courses at the Hall.
- To enhance the knowledge, appreciation, and enjoyment of mathematics and science for the general public by providing the community with a math and science center.

In its efforts to improve instruction in math and science the Hall has developed programs for students and teachers in their own schools. Two particular programs that have been recognized for their excellence are CHEMStudy, a comprehensive high school chemistry curriculum, and the Science Curriculum Improvement Study (SCIS), an activity-oriented science program for children K-6 that was developed in the late 1960s and is now used in more than 20 percent of the nation's elementary schools.

Through its in-school programs, the Hall reaches more than 122,000 children every year in the San Francisco Bay Area.

The Hall sets as a priority the development of programs that deal with the issue of attracting and retaining underrepresented students—such as young women and minorities—in mathematics and computer education.

For more than two decades, the Hall has also provided innovative leadership in pre-collegiate math and science education through the publication of major curricula. These learning materials are utilized by millions of students in the United States and around the world. Curricula and exhibits developed by the Hall are currently used by schools and science centers in more than 30 countries. Each year, more than 700 educators from around the world visit the Hall to learn new techniques to improve science and mathematics instruction.

The Lawrence Hall of Science has achieved national and international prominence as a result of its innovative and effective programs. However, despite the Hall's numerous discoveries and noted accomplishments, much more work still needs to be done.

There is a need for more institutions like the Hall. Therefore, I was deeply honored to participate recently in the dedication ceremonies of another institution committed to improving the education of our young—the Glenn T. Seaborg Center for Teaching and Learning Science and Mathematics. As part of Northern Michigan University (NMU), the Seaborg Center is in a unique position to provide, through its services, resources, and programs, quality education for students and teachers of the Upper Peninsula.

The Seaborg Center, while still young, is rapidly gaining a national reputation that has brought funding agencies to the Center with specific requests. The Lawrence Hall of Science at the University of California at Berkeley, the Kellogg Foundation, and the Public Service Satellite Consortium have all sought out the Seaborg Center and Northern Michigan University to direct or participate in programs that will impact not only the Upper Peninsula but teachers and students throughout the United States.

The Lawrence Hall of Science and the Seaborg Center can join forces to help achieve the goal of educational reform so urgently needed in our country today. We all have a vested interest in education and we must all work together, employing all our resources, to reform and improve our educational system and ensure a prosperous future for our nation. Whatever the expense of improving education, it is an investment in the future we must make. Excellence costs. But in the long run mediocrity costs far more.

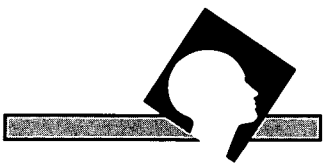
Glenn T. Seaborg, University Professor of Chemistry at the University of California, Berkeley, and associate director of the Lawrence Berkeley Laboratory, is one of the nation's most distinguished scientists, educators, and statesmen of science and has been active in science-education issues throughout his career. He has been chairman of the Atomic Energy Commission and president of both the American Chemical Society and the American Association for the Advancement of Science. In 1951, Professor Seaborg received the Nobel Prize in Chemistry. This essay is adapted from a talk he gave at the opening of the Glenn T. Seaborg Center for Teaching and Learning of Science and Mathematics at Northern Michigan University.

Police Pursuit of Satanic Crime

Part I

ROBERT D. HICKS

Law-enforcement officials throughout the United States flock to training seminars about satanic cults and crime. In Virginia alone, cult-crime officers gave at least 50 seminars in 1988. The seminars, orchestrated by a loose network of investigators, ex-police officers (now cult consultants), therapists, and clergy, offer a world-view that interprets the familiar and explainable—and the unfamiliar and poorly understood—in terms of increasing participation by Americans in satanic worship. The seminars further claim that satanism has spawned gruesome crimes and aberrant behavior that *might* presage violent crime. In particular, law-enforcement officials have developed a model of "the problem," a scheme widely disseminated through police-training seminars as well as through networks of investigators, newsletters, and public presentations. Is this concern justified?



The law-enforcement model of cult crime exaggerates levels of satanic and cult involvement, is derived largely from news articles, and is rife with errors and ignorance.

I argue that the current preoccupation of law-enforcers with satanism and cults has not been prompted by anything new: the phenomenon has a firm historical and cultural context. Further, I suggest that the news media are largely responsible for the law-enforcement model of cult activity, since the evidence officers cite for cult mayhem is generally based on nothing more than newspaper stories. Frequently, these news stories do not even attribute nasty incidents to cults, but the police infer causality anyway. I suggest that for police the actual problem with cults, in terms of their threat to public order, is very small, has nonsupernatural explanations, and requires no new law-enforcement resour-

ces. Newspaper accounts substantiate and fuel police interest in cults. For instance:

—In July 1988, the Myrtle Beach, Florida, *Sun-News* reported that police arrested four teenagers for vandalizing a cemetery, allegedly trying to remove body parts from a grave for satanic rituals (Edge 1988). The judge denied bond because she felt that, once freed, the boys would run amok during upcoming Walpurgisnacht (April 30), a satanic holiday. The boys, the judge felt, couldn't control their own behavior once in thrall to Satan.

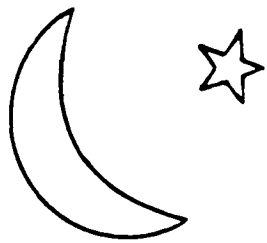
—In February 1989, the *Wall Street Journal* reported that police arrested two brothers for trying to kill a judge through a hoodoo spell. (Hoodoo, a variant of voodoo, survives in the American South primarily among impoverished blacks.) The brothers had arranged with a Jamaican "voodoo priest" to cast a death spell using a photograph of the judge and a lock of his hair. Although the brothers got caught by ingenuously asking the judge's wife for the hair and the photograph, the police nevertheless charged them with conspiracy to commit murder based on the hex alone (McCoy 1989).

—In Virginia, in October 1988, a *Style News* article described cult paraphernalia left at a popular riverside park, but a park official wasn't worried: the paraphernalia could not be the work of dangerous satanists because "real satanists don't leave any traces," he observed (Bacon 1988).

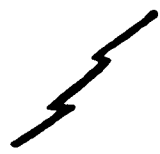
—The *Kansas City Times* reported in March 1988 that a Chicago police investigator said of cult crime, "I think it's going to be a growing problem as we go into the nineties." He further noted that, although there are no national statistics on the problem, a network of satanists does exist—people who perform child molestation and murder as a form of worship. A

"Signs of Satan"

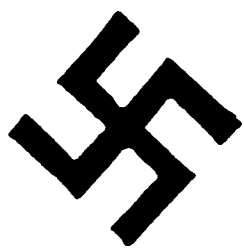
Horned hand



Symbols representing the moon goddess Diana and the morning star of Lucifer.



Lightning bolt



Swastika

deputy sheriff warned that satanists are responsible for as many as 50,000 human sacrifices a year, "mainly transients, runaways, and babies conceived solely for the purpose of human sacrifice" (Berg 1988).

—The same *Kansas City Times* article, surveying the law-enforcement interest in cults, recounted the first of several preschool or daycare-center cases in which children's uncorroborated testimony caused indictments of many adults for sexual abuse. The children said that adults dressed in robes performed ceremonies involving not only rape but even murder, cannibalism, and mutilation (Berg 1988).

The readers of such accounts, given the impassioned testimony of police officers, therapists, teachers, and concerned parents, may well presume the existence of a problem of national proportions. The lack of criminal convictions for these crimes has not deterred satanic-conspiracy proponents.

In my role as a law-enforcement specialist with the Virginia Department of Criminal Justice Services, I have a professional interest in what has become a trendy topic on the police seminar circuit: cult crime. At first alarmed by what I learned at the seminars, I became progressively more skeptical, then even more alarmed by the cult experts' anti-intellectual and anti-rationalist stance. The law-enforcement model of cult crime appeared shoddy, ill-considered, and rife with errors of logic (faulty causal relationships, false analogies, lack of documentation, unsupported generalizations) and ignorance of an anthropological, psychological, and historical context.

One cannot easily analyze the law-enforcement concern with cults, for two reasons: first, the sources of information are irregular, sometimes obscure or not verifiable (e.g., no public access to ongoing criminal investigations); second, the eclectic nature of the law-enforcement model of cult crime makes focused criticism difficult. The information law-enforcers use to document cult activities derives largely from newspaper articles. Reporters often cater to the lurid and the macabre, frequently implying cause-effect relationships or hinting at dark deeds.

For example, articles on teen suicides sometimes note that the victim was known to listen to heavy metal rock music or to play "Dungeons and Dragons," a fantasy role-playing game. Some law-enforcers and concerned parents perceive a cause-effect relationship: "Dungeons and Dragons" introduces young lives to the occult and may prompt suicides. Patricia A. Pulling, founder of the Virginia-based group Bothered About Dungeons and Dragons (BADD), implies such a relationship when she claims that many teen suicides are linked to the game, giving only newspaper articles (including even the *Weekly World News*) as her sources.

Law-enforcement literature makes the same kind of mistakes. For example, an article in *Law-Enforcement News*, a publication of the John Jay College of Criminal Justice in New York, began: "A 14-year-old Jefferson Township, N.J., boy kills his mother with a Boy Scout knife, sets the family home on fire, and commits suicide in a neighbor's back yard by slashing his wrists and throat. Investigators find books on the occult and Satan worship in the boy's room" (Clark 1988). But did the boy have a collection of spiders? A stack of pornographic literature under his bed? A girlfriend who just jilted him? Newspaper accounts don't often mention such other possible explanations.

The Cult-Crime Model

Fundamentalist Christianity drives the occult-crime model. Cult-crime officers invariably communicate fundamentalist Christian concepts at seminars. They employ fundamentalist rhetoric, distribute literature that emanates from fundamentalist authorities and sometimes offer bibliographies giving many fundamentalist publications, and they sometimes team up with clergy to give seminars on satanism. The most notable circular among cult-crime investigators, *File 18 Newsletter*, follows a Christian world-view in which police officers who claim to separate their religious views from their professional duties nevertheless maintain that salvation through Jesus Christ is the only sure antidote to satanic involvement, whether criminal or noncriminal, and point out that no police officer can honorably and properly do his or her duty without reference to Christian standards.

At seminars, cult-crime officers distribute handouts showing symbols to identify at crime scenes, accompanied by their meanings. The handouts typically attribute no sources, but many derive from Christian material. For example, the peace symbol of the 1960s is now dubbed the "Cross of Nero." Someone decided that the upside-down broken cross on the symbol somehow mocks Christianity. (In fact, common knowledge has it that the symbol was invented in the 1950s using semaphore representations for the letters "n" and "d" for nuclear disarmament.)

Fundamentalist Christianity motivates the proponents of cult-crime conspiracy theories in other ways. Apparently, arguing against their theory is, to them, attacking their world-view. To some cult-crime officers, arguing against the model denies the existence of Satan as a lurking, palpable entity who appears to tempt and torture us. Satan becomes the ultimate crime leader: the drug lord, the Mafia don, the gang boss.

Fundamentalist Christianity drives the cult-crime model. Cult officers invariably employ fundamentalist rhetoric, distribute fundamentalist literature . . . and sometimes team up with clergy to give satanism seminars.

Chicago police investigator Jerry Simandl doesn't just investigate crimes, he also interprets cult behavior, particularly that which threatens Christians. He apparently can tell whether an act of church vandalism was committed mindlessly by kids or purposefully by a cult group: "For example, an organ might be vandalized by having its keys broken. That means that the vandals were seeking to deny a congregation the ability to 'communicate with God' through music" (Clark 1988). Simandl draws amazing inferences about these crimes, although they have the lowest clearance rate because they frequently leave no suspects and no evidence beyond the destroyed property. The church vandalism so shocks religious sensibilities that some cult-crime officer—armed with the world-view that cults cause crime—can only interpret the crime as satanic.

Facing Facts

Evil is, indeed, the operative word. Law enforcers who meld cult-crime theories with their professional world-views have transformed their

legal duties into a moral confrontation between good and evil. Larry Jones, a police officer from Boise, Idaho, edits the *File 18 Newsletter*. Jones believes that a satanic network exists in all strata of society and maintains extreme secrecy to shroud its program of murder.

Defensive about the lack of physical evidence of cult mayhem, Jones writes:

> Those who deny, explain away, or cover up the obvious undeniably growing mountain of evidence often demand statistical evidence or positive linkages between operational suspect groups. At best, this demand for positive proof of a "horizontal conspiracy" is naive. . . . Consider the possibility that the reason supposedly unrelated groups in different localities over various time periods acting-out in a similar manner, is that consistent directives are received independently from higher levels of authority. Instead of being directly linked to each other, these groups may be linked vertically to a common source of direction and control. Those who accept this theory as a reasonable possibility need to rethink the meaning, scope and effects of the term conspiracy! (*File 18 Newsletter*, 4[1], 1989)

In other words, if the evidence doesn't seem to fit a particular conspiracy theory, just create a bigger conspiracy theory. Jones and other cult-crime officers impose their model on a pastiche of claims, exaggerations, or suppositions. For example, cult investigators would have us believe that cult practitioners develop skills in the vivisection of livestock and household pets. One investigator, retired police captain Dale Griffis from Ohio, says: "Occultists will stun the animal on his back with an electric probe. Then they will spray freon on the animal's throat. . . . The heart's still pumping, and they will use an embalming tool to get the blood out. It's fast and efficient. Hell, the farmer heard the animal whine, and he was there within five minutes" (Kahaner 1988: 146).

A sheriff's investigator, in a memorandum about cattle mutilations, interviewed a young woman who claimed to be a former satanic-cult member who had mutilated animals. Her cult, which consisted of "doctors, lawyers, veterinarians" were taught by the vets how to perform the requisite fatal surgery. The animal's blood and removed organs, it seems, were used for baptismal rites. She further related:

> When using the helicopter [the cult members] sometimes picked up the cow by using a homemade . . . sling . . . and they would move it and drop it further down from where the mutilations occurred. This would account for there not being any footprints or tire tracks. . . . When using the van trucks they would also have a telescoping lift which . . . was about 200 feet long mounted outside the truck and would use that to extend a man out to the cow, and he would mutilate it from a board platform on the end of the boom and he would never touch the ground. . . . They sometimes do three or four cows. (Kahaner 1988: 148)

It seems that the cult members went to such lengths because they delighted in baffling the police.

The sheriff's investigator reported to his supervisor each detail of this story, but obviously he was unacquainted with Occam's Razor. Trucks with 200-foot booms are not plentiful and would appear conspicuous in rural America, particularly when helicopter air support is called in. The investi-

gator never considered the work of a predator, or even the action of a vandal. Of course, news accounts of such livestock deaths, particularly if related by cult-crime officers, most often attribute deaths to cultists and claim the animals were killed and the organs "surgically" removed. Did a surgeon do the work? Can a police officer tell the difference between a hole in a cow's belly put there by a scalpel and one caused by a predator's sharp teeth?

A comprehensive investigation of cattle-mutilation claims, carried out by former FBI agent Kenneth M. Rommel, Jr., made exactly these criticisms, and many others. Rommel (1980) concluded that virtually all reported livestock mutilations are due to natural actions of scavengers and predators. He cautioned law-enforcement officers not to use the term "surgical precision" and not to be misled by colorful statements by people interested in spreading rumors, theories, and fears.

Cult-crime officers may deny facts that contradict their theories. For example, one of the recent murders they dubbed "satanic" was that of Stephen Newberry, a teenager from Springfield, New Jersey, whose friends bashed him to death with a baseball bat. Even though Larry Jones quotes local investigators, a prosecutor, a psychologist, and an academic cult expert who claimed that no satanic sacrifice of Newberry occurred but instead blamed drug abuse, Jones nevertheless offers the opinion that the experts "do not give credit to the strong influence of the tenets of the satanic belief system over its initiates. In some cases the subjects become involved with satanism . . . prior to the onset of family problems. . . . The only true and lasting solution to 'devil worship' or satanic involvement is a personal encounter with true Christianity" (*File 18 Newsletter*, 4[1]:3).

The pentagram is another "sign of Satan."

The police have found no evidence to support Jones's earlier suggestion that a "vertical conspiracy" might exist—a higher leader directing groups to do murderous business within an authoritarian cult led by a charismatic leader.

The Cult-Crime Model: A Description

Characteristically, law-enforcement cult seminars all promote the same model of satanic cults, although largely without any substantiation or documentation. The model persuades because it takes phenomena familiar to the officers and imbues them with new meanings: officers learn a new lexicon to describe old phenomena and therefore see the cult problem as a new threat to public order. So what is the model?

The model, now almost seven years old, loosely postulates various levels of satanic or cult involvement (see box). Characteristically, the officers—the self-proclaimed experts who teach the seminars—do not define the object of their concern. They use the terms *cult*, *occult*, and *satanism* interchange-

ably but with the connotation of disruption, coercion, mind-control by a charismatic leader, plus, of course, criminality. The terms are extended to religious practices dubbed "nontraditional," e.g., voodoo, Santeria, Native American practices. The label masks an implicit bias that Christianity is the traditional belief, the norm. The same law-enforcers who employ the term *nontraditional* apparently don't see the irony of introducing their seminars with the caveat that officers must respect First Amendment rights and not interfere with noncriminal religious practices. Larry Jones also advises his readers not to interfere with constitutionally protected civil liberties, yet nonetheless judges nontraditional groups or cults according to his standards.

In a discourse on Wicca (as some witches call themselves), he posits, for example, that *any* belief system must set absolute standards of conduct. Relative ones won't do because they "open the door to excesses" (*File 18 Newsletter*, 3[3]:7). He can only find fault with Wicca by abstracting this standard that measures the legitimacy of belief systems. While concluding that Wicca is benign and its practitioners claim no connection with satanism, Jones nevertheless describes much of Wicca as derived from "Luciferian" Aleister Crowley, who allegedly had ties to satanist and black-magic organizations.

The cult-crime model begins with a brief, disjointed history of satanic practices. Typically, lecturers usher in pagans and witches as part of the satanic extended family, sometimes accompanied by specific details of how cultists ply their beliefs. One investigator generalizes that witches pray to 300 deities, and not for benign purposes: witches pray for something smacking of self-interest (from a Richmond Bureau of Police seminar, Virginia, September 13, 1988). (Cult-crime officers imply that Christians never do this.) When satanists pray, they demand, he says. "Satanism is a self-indulgent religion" based on two themes: "All humans are inherently evil," and "Life is a struggle for the survival of the fittest."

The Satanists: LaVey and Crowley

The historical discourse continues by pegging two twentieth-century satanists who have molded the contemporary philosophy of their movement: Aleister Crowley and Anton LaVey. Crowley, described in police seminars as an "influential satanist," although indulging in pagan shenanigans during the early twentieth century, became involved with (although cult officers mistakenly say that he founded) the Order of the Golden Dawn and the Ordo Templi Orientis, "the largest practicing Satanic cult operating today." Further, say the police, the main belief fostered by groups deriving from Crowley's legacy involves "sexual perversion."

LaVey, on the other hand, a former police photographer and circus performer, founded the Church of Satan in San Francisco in 1966 at the zenith of Haight-Ashbury hippiedom. Police officers teach that LaVey's two books, *The Satanic Bible* and *The Satanic Rituals Book*, can be dangerous, and they observe incredulously that both can be found in shopping-mall bookstores. In particular, law enforcers cite LaVey's nine dicta of the Church of Satan, which include (LaVey 1969):

> Satan represents indulgence, instead of abstinence! . . .
>
> Satan represents vengeance, instead of turning the other cheek! . . .
>
> Satan represents all of the so-called sins, as they lead to physical or mental gratification! . . .

The Cult-Crime Model

This model is promulgated widely at law-enforcement cult seminars, largely without any substantiation or documentation.

Traditional Satanists: The first, and highest, level of satanists includes transgenerational family satanism, the cult survivors' tales, and daycare-center ritual abuse. Such satanists comprise an international underground, tightly organized and covert, responsible for upwards of 50,000 human sacrifices a year (some of which are babies bred for sacrifice).

Organized Satanists: The second level of satanic involvement includes public groups, such as the Church of Satan and the Temple of Set. Cult-crime officers' definition of this level as dangerous is ambiguous since organized groups formally proscribe acts of violence. But cult seminars imply *a fortiori* that such groups promote self-indulgence to the point of attracting psychopaths or criminals. Thus it is the perceived likelihood of public satanic organizations attracting bad people that justifies law-enforcement surveillance.

Self-styled Satanists: The third level of involvement includes self-styled satanists, such as mass murderers like John Wayne Gacey and Henry Lee Lucas. These men, also social isolates, invented ideologies to affirm their behavior. Some cult-crime officers even maintain that these criminals do their evil deeds as a form of satanic sacrifice to give them power, but other law-enforcers, such as Griffis, believe that self-styled satanists borrow from the occult because satanic ideology permits or encourages their crimes. This idea is the most plausible component of the model: sociopaths or psychopaths, already distanced from common standards of behavior, may choose an ideology that helps them reconcile their crimes with their consciences.

Dabblers: Dabblers, those in the outer, or fourth level of cult involvement, are mostly children, teenagers, or very young adults who, in unsophisticated fashion, play with satanic bits and pieces. At this level, "Dungeons and Dragons" (D&D) and like games rope kids into the occult, as does heavy metal rock music with satanic lyrics. Some investigators here introduce the implantation (backmasking) of satanic messages in music. But the real *bête noir* of youth is the fantasy role-playing game, usually D&D. Says one investigator, "Every kid that plays D&D will not get into satanism, but how many kids do we lose before we have a problem?" (Richmond Bureau of Police seminar, Virginia, September 13, 1988). But through playing the game, "some kids cross over an imaginary line and start connecting their D&D world with the real world." In the seminars, cult-crime officers give estimates of 95 to 150 documented deaths of children directly linked to the game (based on news articles).

Cult officers maintain that LaVey's dicta foster in his followers the attitude, "If it feels good, do it," thus justifying criminal acts.

Aleister Crowley is said to have added a more wicked dimension to this philosophy, for in his *Book of the Law* (written before World War I) he stated, "Do what thou wilt shall be the whole of the law" (Crowley 1976:9). The statement quoted by the law-enforcement officers out of context implies to them license for murder. In context, however, one reads a metaphorical jaunt through the ancient Egyptian pantheon full of erotic and occasionally Masonic allusions. One might infer from context that the law officers' quotation, too, is figurative speech.

The Book of the Law, as dictated by a shadowy prophet to Crowley, contains a damning quotation: "Love is the law, love under will. There is no law beyond Do what thou wilt." But the text even explains the credo by pointing out that people move through their lives according to their destinies, that people act according to experience, impulse, and the "law of growth." In short, people are controlled by destiny: they cannot act apart from it. "Do what thou wilt" means "Do what accords with your destiny." Crowley's most recent biography points out that he did not intend the phrase to mean, "Do what you like," but rather, as Crowley later wrote, "Find the way of life that is compatible with your innermost desires and live it to the full" (King 1978:36). The same biographer adds that an exegesis of the work may be impossible because Crowley himself claimed that he didn't understand all of it.

Nevertheless, say law-enforcers, deviant people use Crowley's prescription to justify sex crimes, child-molesting, and murder. To add to the mystery, one police investigator held up a copy of Crowley's book at a seminar, stating that one can obtain it only from a certain Pennsylvania occult bookstore or from the Ordo Templi Orientis, and that he himself could not reveal how he obtained his copy.[1]

LaVey, on the other hand, operates without a deity. To the Church of Satan, the Evil One is no deity but rather a symbolic adversary. The Church of Satan, then, pulls a clever trick:

> "What are the Seven Deadly Sins?" LaVey is fond of asking. "Gluttony, avarice, lust, sloth—they are urges every man feels at least once a day. How could you set yourself up as the most powerful institution on earth? You first find out what every man feels at least once a day, establish that as a sin, and set yourself up as the only institution capable of pardoning that sin." (Lyons 1988:111)

Since people's guilt, apprehension, and anxiety about such urges are worse than experiencing the urges themselves, the Church of Satan offers people a release: Indulge yourselves, says the Church, as long as you abide by the law and harm no one. Lyons (1988) reports examples of Church of Satan psychodramas that engineer people's confrontations with their own fears, such as a woman afraid of her domineering husband who role-plays him to help reduce his menacing effect on her. Further, the rituals of the Church of Satan frequently invoke fictional deities. "In joining the Church of Satan, these people not only managed to inject a little mystery and exoticism into their otherwise banal lives, they achieved a mastery of their own fates by the practice of ritual magic," Lyons wrote (1988:116). Lyons's point was confirmed by the

participant observation experiment of anthropologist Edward Moody, who found the Church of Satan therapeutic (1974).

If LaVey's ideology is contrived of fiction, symbolism, and a deliberate antidote to Establishment Christianity, and Crowley retailed in the metaphysical (what one would now call New Age), why the law-enforcement interest? Cult officers focus on these two because they have been published and their philosophies are within easy reach. No other "satanic" ideologies exist that have so openly and publicly philosophized. They make easy targets. One of the first articles on this subject in a law-enforcement journal even pointed out that LaVey uses a symbolic Satan and noted in context that LaVey's church even condemns sex crimes, including bestiality, but nevertheless stated, "It seems contradictory for a group to encourage all forms of sexual expression, and at the same time place parameters on that activity" (Barry 1987:39).

By touting certain books as evil and pernicious, cult-crime officers have appointed themselves conservators of our libraries. Cult consultant Dale Griffis has recommended that officers contact public libraries for names of patrons who have borrowed books on the occult (according to an Office of Intellectual Freedom *Memorandum*, American Library Association, January/February 1988, p. 7).

The cult-crime officers not only cite numerous books à la LaVey and Crowley as bona fide compendia of occult knowledge rising from the dim horizon of ancient history, but also cite as dangerous the occult symbols on rock music albums, the songs' lyrics, and the fantasy characters that appear in the advanced levels of "Dungeons and Dragons." Yet the game does not invoke any Mephistopheles from the *arcanum arcanorum* of medieval alchemists: the D&D gods, in fact, derive largely from the imaginations of the game designers and the encyclopedia (Michael Stackpole, game designer, personal communication, 1989).

Note

1. Taking the officer's statement as a challenge, I examined his copy, the title page complete with an ISBN number and the reprinting publisher's name, Samuel Weiser, Inc. With help from directory assistance, I contacted the publisher's customer-relations representative. I discovered that the company, which publishes many New Age books, still prints Crowley in paperback, so I placed an order for *The Book of Law*. I alarmed the representative by explaining what the officer had said about the impossibility of obtaining a copy, to which the surprised woman said, "But we'll sell it to anyone who asks!" I received my copy within ten days. (The officer who created the mystery over the book was an investigator for the Richmond, Virginia, Bureau of Police, lecturing on September 13, 1988.)

References

American Library Association (Office of Intellectual Freedom). 1988. *Memorandum*, January-February.

Bacon, L. A. 1988. Cult activity in James River Park. *Style Weekly*, 6 (42):6. October 18.

Barry, R. J. 1987. Satanism: The law enforcement response. *National Sheriff*, 38 (1):38-42.

Berg, M. 1988. Satanic crime increasing? Police, therapists alarmed. *Kansas City Times*, March 26.

Clark, J. R. 1988. The macabre faces of occult-related crime. *Law Enforcement News*, 14(279-280). October 31 and November 15.

Crowley, A. 1976. *The Book of Law*. (Reprint) York Beach, Me.: Samuel Weiser.

Cult Crime Impact Network. 1988. *File 18 Newsletter*, 3(3).

———. 1989. *File 18 Newsletter*, 4(1).

Edge, C. 1988. Four Satan worshipers arrested in attempt to rob Conway grave. *Sun News* (Myrtle Beach, Fla.), July 28.

Kahaner, L. 1988. *Cults That Kill*. New York: Warner Books.

King, Francis. 1978. *The Magical World of Aleister Crowley.* New York: Coward, McCann & Geoghegan.
LaVey, Anton. 1969. *The Satanic Bible.* New York: Avon.
Lyons, A. 1988. *Satan Wants You: The Cult of Devil Worship in America.* New York: Mysterious Press.
McCoy, C. 1989. Mississippi town is all shook up over voodoo plot. *Wall Street Journal,* February 24.
Moody, E. J. 1974. Magic therapy: An anthropological investigation of contemporary Satanism. In *Religious Movements in Contemporary America,* ed. by I. I. Zaretsky and M. P. Leone. Princeton, N.J.: Princeton University Press.
Rommel, Kenneth M., Jr. 1980. Operation animal mutilation. Report of the District Attorney, First Judicial District, State of New Mexico, June 1980.
Stackpole, M. 1988-89. Personal communications.

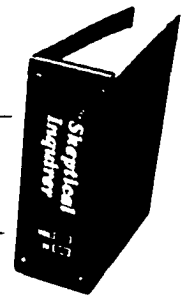
Next: "Part II: The Satanic Conspiracy and Urban Legends."

Robert Hicks is a law-enforcement specialist/criminal justice analyst with the Virginia Department of Criminal Justice Services, 805 E. Broad St., Richmond, VA 23219, 804-786-8421. This article expresses his opinions, not those of his agency or the Virginia state government.

TO PRESERVE YOUR COPIES OF THE SKEPTICAL INQUIRER

Order handsome and durable library binders. They are bound in blue library fabric stamped in gold leaf.

Each binder holds six issues. Price per binder $7.95; three for $20.95; six for $39.00 (plus $1.50 per binder for handling and postage).



Please send me _____ binders.

I enclose my check or money order for $ _____
(U.S. funds on U.S. bank)

Please charge my ☐ Visa ☐ MasterCard

_____ Exp. _____

Name _____
(please print)

Address _____

City _____ State _____ Zip _____

THE SKEPTICAL INQUIRER • Box 229 • Buffalo, NY 14215

The Spread of Satanic-Cult Rumors

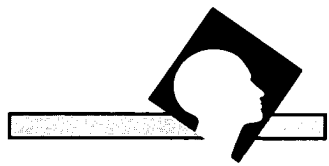
JEFFREY S. VICTOR

Scientists sometimes discover something really interesting by accidentally stumbling onto completely unexpected findings. This is what happened to me after I decided to investigate the causes of a rumor-panic about satanic cults that ocurred in Jamestown, New York, on Friday, the 13th of May, 1988. It caught my curiosity because I knew a few of the teenagers who were victims of the malicious gossip and vigilante harassment created by the stories.

I have been trained as a sociological researcher, which means that I investigate the causes of group behavior. A rumor-panic is much like the stampede of a herd of buffalo: It is a product of group forces, rather than of the personal motives of individuals.

I used a wide variety of methods to collect information relative to the rumor stories and behavior in response to those stories. My goal was to obtain an "ecological" view of the community of Jamestown as a social system affected by social forces in the larger social system of the national society.

My research methods included interviews I conducted with a wide variety of community authorities, including police, school officials, youth group workers, ministers, psychotherapists and newspaper reporters. The Jamestown Police Department was exceptionally helpful in providing me with nonconfidential information regarding their own investigations of the various rumor stories. I also interviewed newspaper reporters from other towns in the region who covered the story. Students from one of my classes conducted interviews with 49 local



Rumor-panics about dangerous satanic cults have occurred all over the country since 1984.

area teenagers, parents, and informal authority figures (such as teachers and ministers), shortly after the rumor-panic occurred. One student, on an independent study project, did a research study of teenage peer group conflict in Jamestown in reaction to the rumors, interviewing 30 teenagers from different youth subcultures. I also had information of my own as a member of the community and as the father of a teenage son in the local high school. As a teacher in a community college, most of my students (youth and adults) are from the local area. Many of them talked to me at length about the rumors. I also obtained useful information from school attendance records, reports from local government agencies, and other documents.

I used a variety of sources to put my local research findings into a national context, including recent books by crime reporters, fundamentalist Christian proselytizers, and scholars studying cult behavior. I found the most useful information about satanic panics and satanist activity around the country in newspaper articles. The most thoroughly researched overview was published in a series of articles in the *Memphis Commercial Appeal* (Charlier and Downing 1988).

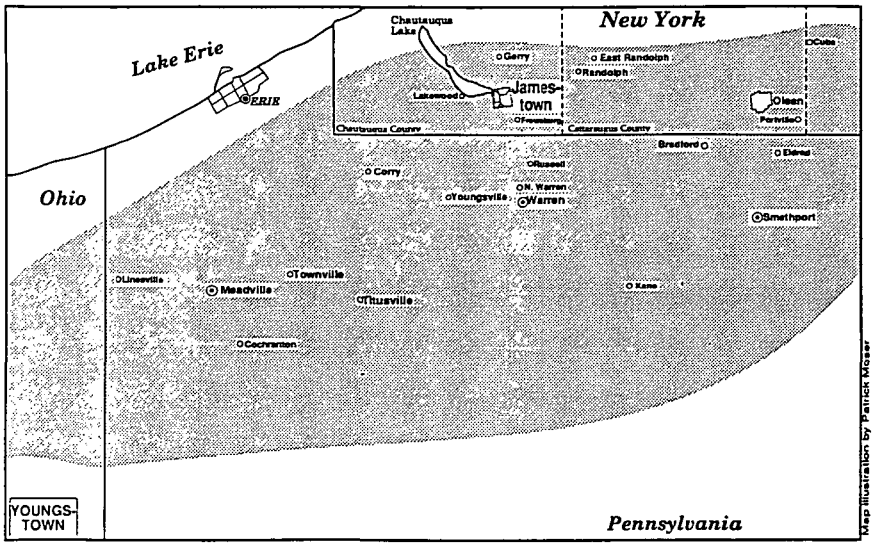
In researching the Jamestown rumors, I was surprised to find that very similar rumor-panics in response to fears of dangerous satanic cults have been occurring all around the country since 1984. One of them, for example, occurred on Friday the 13th over most of the state of South Carolina in 1987, a year before it happened in Jamestown.

I have so far located 21 sites of past rumor-panics about satanic cults. These have almost all occurred in economically declining small towns and rural areas of the country. The rumors are also amazingly similar, for example, "A satanic cult is killing animals at secret ritual meetings in the woods" or "A satanic cult is planning to kidnap and sacrifice blond, blue-eyed children." In addition, there are many locally inspired variations of these themes, which may include references to killing black cats, or lists of teenagers to be sacrificed, or allusions to drug-induced sex orgies.

The people of Jamestown were fortunate in having an exceptionally professional police force that did not let itself succumb to the rumor-mongering hysteria. Instead, they reacted with proper concern for verifiable facts and with responsible actions designed to discourage vigilante violence. My research found that this was not the case in many other locations. In some cases, police reacted by passing on rumors as facts, by arresting the innocent victims of the rumors, and by engaging in irresponsible witch-hunts.

In one case in New Hampshire, for example, police publicly claimed to have found evidence of ritually slaughtered animals, which were later determined to be only road kills cleaned up by state road workers and deposited in the woods. In another case, in Cobleskill, New York, in response to reports of a "satanic cult ritual meeting" and impending human sacrifice, police rushed with guns drawn into a wooded site. They found only some college students in hooded garments practicing a medieval play and using wooden daggers and swords as props. Actions like these are not only embarrassing but also create danger where none exists.

My research found that many people in the Jamestown area believed that the police, the editors of the local newspaper, and Jamestown school officials, who dismissed the stories as the empty rumors they were, were all



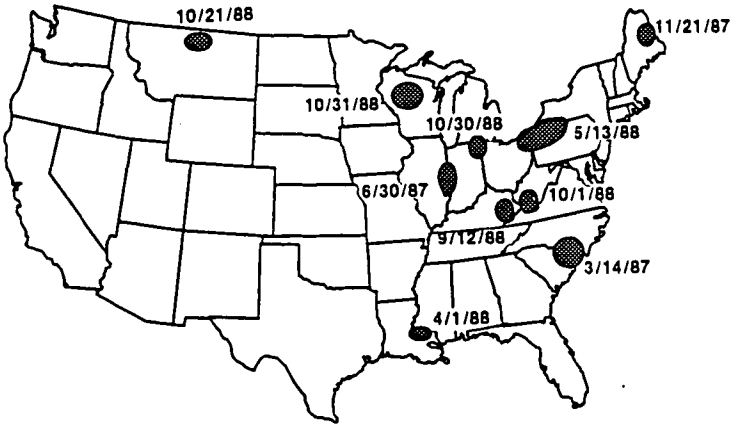
The shaded area is where satanic rumor-panics occurred during May 1988. Locations shown are where rumor activity was most intense according to newspapers reports. (Map by Patrick Moser.)

engaged in some kind of grand cover-up of the real facts. This should not be surprising since so many of our political and corporate leaders have so often lied to the public about unpleasant goings on. Other research has shown that the American people's confidence in the ability of their leaders and institutions to solve problems is at an all-time low. This may be one reason the satanic-cult rumors are taken seriously by so many people.

When I began my research, I assumed that the rumors were limited to the Jamestown area. However, I was surprised to find that similar stories were circulating at the same time over a 250-mile area of southern New York and northwestern Pennsylvania. Moreover, since similar rumor-panics had occurred across the country before the one in Jamestown, I realized that the underlying causes of the satanic-cult scare must be national in scope.

Nevertheless, my local investigation provided important clues about what is happening nationally. I found, for example, that these rumors were not a sudden outburst. Instead, they were the result of a gradual process that took months to develop. Local gossip "snowballed" into elaborate stories, as layer after layer of fiction were added and the stories were repeated over and over by hundreds of different people. I reasoned that whatever "triggered" the rumor process had to reach a wide audience simultaneously. I found evidence that the satanic-cult rumors first appeared after ideas from television talk-show programs about satanism were distorted to fit into local gossip in different communities in the region.

I also found that various groups of people were affected differently by the rumors. A great many people did not take them seriously and paid little attention. On the other hand, hundreds of parents became alarmed, to the point of keeping their children home from school, out of fear that they might be kidnapped by the "cult." My evidence indicates that less-



Locations of some recent rumor panics and the dates they were reported in newspapers.

educated and lower-income parents were more likely to take the stories seriously.

Determining the underlying causes of these satanic-cult rumors is difficult, and it is really a matter of interpretation. Past studies of rumormongering have found that such activity increases in times of widespread social stress, when many people are seeking explanations for frustrating life experiences. I believe that economic difficulties and the resultant breakdown in family relations is a source of that frustration. Other research has found that small-town and rural areas all over the country are suffering from a loss of well-paid blue-collar jobs. This stressful situation is most strongly affecting poorly educated young parents in rural areas, about one-third of whom now live in poverty.

Another clue to the causes of these rumors can be found in the stories themselves. Rumors that claim that some kind of alien group is threatening the people in a society are called "subversion myths." Subversion myths about Jews, or communists, or witches are common when people feel that their traditional values are being threatened by social problems. I believe that the satanic-cult scare is an expression of the desire of Americans for clear and consistent values that can give stability to their lives and those of their children.

A great many parents today are seeking scapegoats for their fears and frustrations. Parents in small-town America have to worry about threats to their children that few of their grandparents had to face: the drug plague, violent juvenile crime, disorder in the schools, and even teenage suicide. The increasing breakdown of family structure has served to deepen these fears and intensify the need to blame somebody for the mess.

I found one thing especially disturbing. It appears that some people are going around the country making thousands of dollars from lecture fees by cultivating fear about satanic cults. Many of these same Satan-hunters have broadcast their claims to national audiences on the television talk-shows of Geraldo Rivera, Oprah Winphrey, and Sally Jesse Rafael. Their wild, unsubstantiated claims about satanism have the effect of inflaming passions. Many innocent people can be victimized by their appeals to the scapegoating hysteria.

Kenneth Lanning, the head of the

FBI's special unit in charge of investigating claims about satanic-cult crimes, finished a report of his findings in June 1989. In his conclusion, he cautions: "Until hard evidence is obtained and corroborated, the American people should not be frightened into believing that babies are being bred and eaten, that 50,000 missing children are being murdered in human sacrifices, or that satanists are taking over America's day care centers. . . . An unjustified crusade against those perceived as satanists could result in wasted resources, unwarranted damage to reputations, and disruption of civil liberties." Unfortunately, I found evidence that these harmful effects of rumor-mongering are already being felt around the country.

References

Charlier, Tom, and Shirley Downing. 1988. Facts, fantasies caught in tangled web, *Memphis Commercial Appeal*, January 17; Allegations of odd rites compelled closer look, January 17; Links to abuse hard to prove, January 18.

Victor, Jeffrey S. 1989. A rumor-panic about a dangerous satanic cult in Western New York. *New York Folklore*, 15(1-2):23-49.

Jeffrey S. Victor is a professor of sociology at Jamestown Community College, Jamestown, NY 14701. He is writing a book about the national "satanic cult" hysteria.

A Reminder . . .

All *subscription* correspondence (new subscriptions, renewals, back-issue orders, billing problems) should be addressed to:

SKEPTICAL INQUIRER, Box 229, Buffalo, NY 14215-0229

All *editorial* correspondence (manuscripts, letters to the editor, books for review, authors' queries) should be addressed to the Editor's office in Albuquerque:

Kendrick Frazier, Editor, The SKEPTICAL INQUIRER, 3025 Palo Alto Dr. N.E., Albuquerque, NM 87111

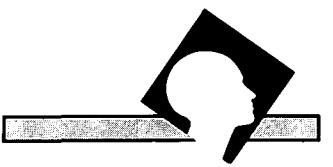
Inquiries concerning CSICOP programs or policies should be addressed to:

Paul Kurtz, Chairman, CSICOP, Box 229, Buffalo, NY 14215-0229

Lying About Polygraph Tests

ELIE A. SHNEOUR

In every culture, lying is proscribed, and great efforts are made in attempts to overcome it. This is not so much because people dislike being misled, but because lies pose a threat to the stability of society. Lying is tolerated only when life or property is in imminent danger. The ultimate deception, however, comes from claims for the effectiveness of lie detection using modern technology. This is nothing short of the assertion that it is now possible to read other persons' minds through the expert use of an instrument called the polygraph.



Polygraph testing uses the jargon of science for legitimacy, but it properly belongs to pseudoscience.

In its most recent incarnation, the polygraph is a small suitcase-sized machine that can measure, and continously record on a strip chart, the following physiological variables: pulse rate; blood pressure; rate and depth of respiration; and galvanic skin response (GSR), also called electrodermal response (EDR), which is a measure of sweat production through electrical conductance.

The scientific basis for making these presumed lie-detecting measurements rests on the following premises: (1) that the transducers used in a polygraph are able to make, when properly calibrated and responsibly operated by a skilled operator, fairly accurate measurements of these variables, (2) that the physiological variables measured by a polygraph are related to physiological arousal, and (3) that psychological stimuli can be associated with these physiological responses.

No one seriously questions the first of these premises. The controversy swirling around polygraph tests focuses on premises (2) and (3) and the contention that it is possible to interpret them in ways that can detect deception. On this subject there is an extensive and, to a large

extent, a confusing literature: It ranges all the way from anecdotal to peer-reviewed scientific reports, performed with protocols as complex as those used in the clinical trials of new drugs. In general, it can be concluded from these reports that the anecdotal data tend to support the polygraph tests as an effective method of deception detection, while the doubts get increasingly more significant as one moves ever closer to carefully controlled clinical experiments.[1]

Although there are important differences in how polygraph tests are actually administered, with conflicting claims made about which procedures and methods are optimal in the detection of deception, they all generally include three phases: (1) the pre-test interview, (2) the questioning procedure, and (3) the post-test interview.

The *pre-test interview* is intended to generate the psychological climate essential to optimize the effectiveness of the examination to follow. It consists, in the main, of a usually successful effort by the examiner to convince the subject that the examination is conducted by an expert and that any attempted deception by the subject will become immediately obvious to the examiner. The pre-test interview also includes questions about whether the subject is under the influence of licit or illicit medication susceptible of affecting the results of the examination.

It is a remarkable fact that the medication assessment is almost never made the subject of independent verification by the collection and testing of blood and urine samples, thus resting solely on the word of a person whose credibility is the justification for the polygraph examination. The second part of a polygraph examination is the actual *questioning procedure*, which has been exhaustively reviewed by the leaders in the field, notably by Barland and Raskin and by Reid and Inbau.[2,3] This part of the examination begins with the subject being cuffed and strapped to the

device. The considerable resulting discomfort is eased every 15 minutes or so while the examiner changes charts.

These interludes provide the examiner with opportunities to ask the subject about his reaction to the questions posed and allow refinement of the questions to be asked next. The examiner also performs stimulation tests to further convince the subject of the accuracy of the polygraph examination. There are many variants of the "stim" tests, but the most common ones involve the use of playing cards. The examiner unerringly identifies cards secretly chosen by the subject, on the basis of questions and answers recorded by the polygraph. These stim tests sometimes involve deception by the examiner: the use of marked cards to ensure a perfect score, something he or she knows the unaided polygraph can never produce.

The examination strategy consists of asking questions intended to reveal deception by the subject. They usually include *relevant* questions, such as "Did you steal the $1,000?" or, in a security investigation, "Did you ever have a contact with any foreign intelligence agent?" Since there is no known physiological response unique to lying, it is necessary to continuously reestablish a baseline evaluation of responses against *neutral* or *irrelevant* questions, such as "Is your name Jones?" or "Is today Monday?"

There are also *control* questions intended to elicit guilty responses to questions about lying by even honest people, such as "Have you ever lied about your age?" and *concealed information* questions aimed at detecting whether the subject is familiar with information that only a guilty person would know. For example, if a stolen car was blue, several successive questions are asked, going through a list of colors. It is presumed that a distinctive polygraph response will be obtained when the examiner asks whether the car stolen was blue.

Actually, this phase of the examination is even more complex than that. There are several arcane strategies of questioning being endlessly debated by the polygraph community. We need not dwell on them here. They include zone of comparison (ZOC) tests, peak of tension (POT) tests, guilty knowledge tests (GKT), and modified general questions tests (MGQT). There is no consensus about which of these strategies might be optimal, because no credible database has ever been developed to evaluate this or any other significant issue involving polygraph testing.

The final part of the polygraph examination is the *post-test interview*. Releasing the straps and changing the charts, mentioned earlier, are opportunities, albeit strained, for verbal exchanges between examiner and subject. This helps the examiner not only to formulate questions but, more significantly, to form an opinion of the subject's truthfulness. At the conclusion of the examination, the examiner usually makes an on-the-spot assessment of the subject as deceptive or truthful, an opinion that the examiner shares with the subject. The exception to this rule is the federal government's evaluation of national security cases, in which an official review of the results must be made prior to disclosure to the subject.

If the subject is judged to have been deceptive, the examiner will attempt to elicit a confession. This is usually done indirectly, to facilitate the opportunity for the subject to clarify, explain, or confess the meaning of the responses elicited by the examiner during the polygraph examination. Although few examiners will admit it, a good judge of human behavior will override the polygraph charts and

generate a report that is more heavily weighed by the examiner's own perception of the subject. It can be argued in this context that nothing can substitute for an expert cross-examination, without the mumbo-jumbo associated with the use of the polygraph. This is a recognition of the fact that the best lie detector in existence since the dawn of human history has been, and remains, the perceptive human being. Alas, few polygraph examiners appear to fit that description.

Since the examiner is the key to the effective use of the polygraph, it is interesting to observe that very little attention has been paid to document a question that lies at the core of polygraph testing legitimacy: Who is the polygraph examiner and how, by whom, and where is he trained and accredited?

There are about six thousand people in the United States who call themselves polygraphers, and there are no formal licensing procedures for them. Anyone can put up a shingle, buy something simulating a polygraph, and conduct polygraph examinations on which people's livelihood, reputation, and freedom may depend. One national organization, the American Polygraph Association, has been trying, with largely indifferent results, to set standards for polygraphers. Only the U.S. government runs an international school for polygraphers, most of whose alumni are subsequently employed as polygraphers by the United States and its allies.

This school, claimed with some justification to be the best in the world, opened in 1951 and greatly expanded after 1981, is located in building 3165 of Fort McClellan in Alabama. Some three dozen students at a time, drawn mostly from the ranks of the FBI, the Secret Service, the National Security Agency, and the several military investigative branches of the U.S. and its allies, spend 14 weeks in training at the school. The first four weeks of lectures are on the subjects of law, semantics, ethics, physiology, pharmacology, psychology, and the operation, testing, and maintenance of the polygraph. This is followed by 10 weeks of actual practice, after which the successful candidate can conduct polygraph examinations for the government. By comparison, in most states at least a year's training is necessary to become a licensed barber.

Although polygraph evidence cannot be used in most courts of law, except by subterfuge, and polygraph testing as a condition of civilian employment has now been outlawed, the U.S. government still heavily depends on these examinations. The General Accounting Office (GAO) reported in 1987 that 2.2 million security clearances were held within 41 government agencies, exclusive of the NSA and the CIA. A significant proportion of these clearances were subject to polygraph examination. In the Department of Defense alone, for example, the number of polygraph tests administered more than doubled between 1981 (6,556) and 1985 (13,786). They exceeded 21,000 by 1987—in spite of the fact that there were 750,000 fewer federal contractors and workers with security clearances in 1985 than there were in 1984. In 1985, the U.S. government had 160 polygraph operators and had ordered 153 additional machines.

The heavy reliance on polygraph examinations in national security procedures has been reviewed, documented, and sharply criticized in several reports. A notable example is the one published by the U.S. House Select Committee on Intelligence of the 100th Congress. It concludes that

the rapidly increasing use of, and excessive reliance on, polygraph examinations since 1981 creates a false sense of security and represents a dangerous trend that may increase rather than decrease the risks to our national security.[4]

The central premise of polygraph testing, the psychological assumption that guilt can *always* be inferred from emotional disturbance, is considered to be implausible by the majority of knowledgeable psychologists in the field. The American Polygraph Association claims that studies of polygraph examinations yield accuracy rates of from 87.2 to 96.2 percent. Although these undocumented figures are dubious at best, if for the sake of argument we accept a 90-percent figure, this means that out of the total of 21,000 examinations reported by the federal government (not including the CIA and NSA) in 1986, 2,100 got away with their guilt or were innocent when they "failed" the test, and some of those who got away with false negatives (i.e., labeled as truthful and reliable) may, at this very moment, still hold sensitive government positions of trust.

But the ultimate irony lies in the well-established observation that polygraph examinations tend to err on generating substantially more false positive than false negatives. This means that truthful persons incriminated as liars by the polygraph will outnumber actual liars. Good advice would be that if you are innocent, never take a lie-detector test. But if you are guilty, by all means take one: you may be exonerated. Acceptance of polygraph testing is a peculiarly unique U.S. phenomenon, where the procedure is rarely questioned and is accepted at face value by most people. It is almost unknown in the rest of the civilized world.

This underscores the issue of polygraph tests' jeopardy to the basic constitutional premise that a person is innocent until *proved* guilty, that it is better to let a guilty person evade the net of justice than to punish a single innocent person. Nearly all parties to polygraph testing, including U.S. government authorities responsible for such examinations and the quasi totality of responsible academic investigators in this field, have taken the position that polygraph testing should not be permitted as a condition for gaining and retaining employment. The U.S. Congress, under the leadership of Senator Orrin Hatch (R-Utah), passed legislation now in effect making the use of polygraph testing for most civilian employment illegal.

Polygraph testing uses the jargon and attributes of science for legitimacy, but it properly belongs to pseudoscience. Its main justification for existence is that it *can* be effective in getting at the truth through *intimidation*. It is *not* the technical data that provides such a determination, but the interpretation given to the data by the polygraph *examiner*. Objective criteria to make such determinations simply do not exist and there is as yet no known reliable method to get at the truth by the application of scientific principles.

The debate about polygraph examinations has raged for more than six decades, and still no consensus has emerged on their effectiveness or their justification in detecting deception.[5] Until modern technology develops credible methods, if this is at all possible, polygraph tests will remain the subject of continuing controversy.

Notes

1. *Scientific Validity of Polygraph Testing: A Research Review and Evaluation.* (Washington, D.C.: Office of Technology Assessment, November 1983).

2. G. H. Barland and D. C. Raskin,

Validity and Reliability of Polygraph Examinations of Criminal Suspects, Report No. 76-1, Contract No. N1-99-0001 (Washington, D.C.: National Institutes of Justice, Department of Justice, 1976).

3. J. E. Reid and F. E. Inbau, *Truth and Deception: The Polygraph Technique*, 3rd ed. (Baltimore: William Wilkins, 1977).

4. *Report by the Permanent Select Committee on Intelligence, House of Representatives, 100th Congress*, Report No. 100-3 (Washington, D.C.: U.S. Government Printing Office, 1987).

5. W. G. Iacono and C. J. Patrick, What psychologists should know about lie detection, Chapter 17 of *Handbook of Forensic Psychology*, ed. by A. Hess and I. Weiner (New York: Wiley, 1986).

Copyright ©1990 by Elie A. Shneour

Elie A. Shneour is director of the Biosystems Research Institute, P.O. Box 1414, La Jolla, CA 92038.

Subscription Service

Are you curious about your subscription?

If you have questions about your SKEPTICAL INQUIRER subscription payment, change of address, delivery, or other problems, please call our Subscription Service at

716-834-3222

or write to

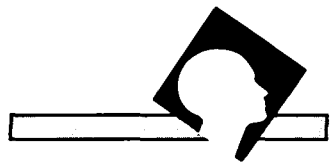
Skeptical Inquirer
Subscription Service
Box 229
Buffalo, NY 14215-0229

We will need to know your name, address, zip code, subscriber number (on your mailing label), and the date and amount of any payment in question.

Worldwide Disasters and Moon Phase

I. W. KELLY, D. H. SAKLOFSKE, and ROGER CULVER

Throughout history the moon has been associated with a great many human activities. Lieber (1978), for example, reviews lunar speculations regarding murder, aggression, evolution, romance, birth rate, human restlessness, fatal traffic accidents, and civilization in general. The moon is especially hypothesized to be associated with notable crimes and disasters; and Lieber (1978, p. 12) contends that the most violent crimes have occurred at the time of the full moon. Since some advocates of lunar effects point to calamitous events that have occurred during the times of the full moon as evidence of such effects, one would expect to observe a strong relationship between the full moon and an increase in the frequency of notable or great disasters. The reasons for this supposed correlation or even causal relationship are not always clear (Culver, Rotton, and Kelly 1988).



An empirical investigation shows no relationship between moon phase and disaster occurrence.

We have conducted a small-scale exploratory examination of this possibility. Since we are dealing with "notable" disasters or those that involve a great number of deaths or receive a large amount of media coverage, the sample sizes in this study are smaller than those typically used in investigating lunar effects. By definition, a notable disaster does not occur very often. Given the small sample sizes, only a relatively large lunar relationship would be expected to come out of this study. However, while small effects may be of interest to the scientist and theoretician, the average person is more interested in relationships that have a predictive value in everyday life. This study

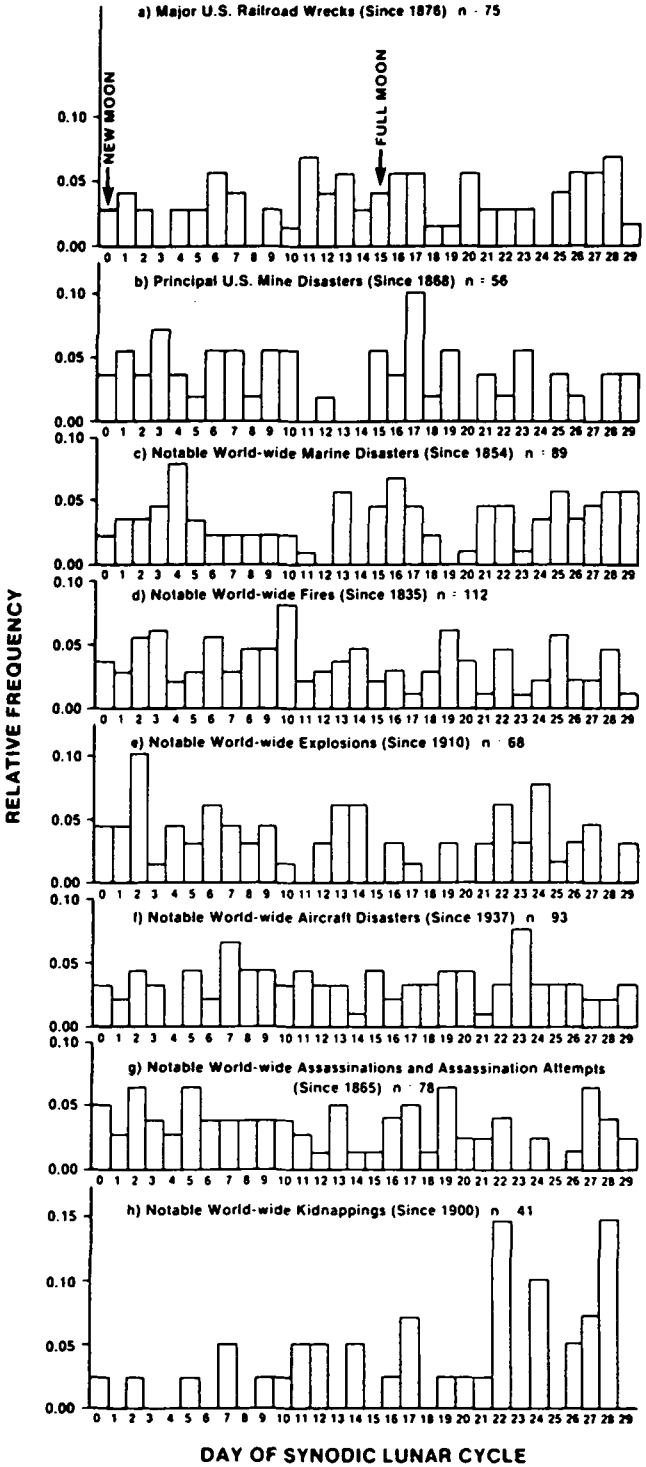

a) Major U.S. Railroad Wrecks (Since 1876) n = 75
NEW MOON
FULL MOON
b) Principal U.S. Mine Disasters (Since 1868) n = 56
c) Notable World-wide Marine Disasters (Since 1854) n = 89
d) Notable World-wide Fires (Since 1835) n = 112
e) Notable World-wide Explosions (Since 1910) n = 68
f) Notable World-wide Aircraft Disasters (Since 1937) n = 93
g) Notable World-wide Assassinations and Assassination Attempts (Since 1865) n = 78
h) Notable World-wide Kidnappings (Since 1900) n = 41
RELATIVE FREQUENCY
DAY OF SYNODIC LUNAR CYCLE

FIGURE 1. Histograms of notable disasters according to day of synodic lunar cycle. (Source: *The World Almanac and Book of Facts 1989*. World Almanac, New York.)

focuses on the belief that there is a practicable relationship between lunar phase and disaster. Our source for the disasters was *The World Almanac and Book of Facts 1989*.

An examination of the relative frequency of the disasters graphed according to day of the synodic lunar cycle (Figure 1) indicates that the full moon days have no elevated frequencies of disaster occurrence. A statistical analysis (4 × 8 chi square) revealed no evidence of a relationship between frequency of type of disaster (U.S. railroad accidents, U.S. mine disasters,[1] marine disasters worldwide, fires worldwide, aircraft disasters worldwide,[2] and explosions, assassinations, and kidnappings worldwide) and five days centered on each of the four phases of the moon (new moon, first quarter, full moon, and third quarter): $[x^2(21) = 17.48, \quad p = 0.68]$, where $n = 426$.

Similarly, an analysis (one factor chi square) with disasters and five days centered on a moon phase did not result in evidence that disasters occur more often during any one moon phase $[x^2(3) = 1.51, p = 0.68]$.

Finally, an overall analysis across all disasters provided no evidence that disasters (of all types) tend to occur on any one *day* of the synodic lunar cycle more often than on any other $[x^2(28) = 30.16, p = 0.36]$.[3]

These findings are consistent with other reviews that have failed to find a relationship among psychological, physical, and sociological behaviors and the synodic lunar cycle (Kelly, Rotton, and Culver 1985; Culver, Rotton, and Kelly 1988; Martens, Kelly, and Saklofske 1988; McFarlane, Martin, and Williams 1988; Coates, Jehle, and Cottington 1989).[4]

In conclusion, in these analyses we have looked at eight types of disasters and their frequencies at the four phases and moon-day of the lunar cycle. No evidence was uncovered that supports the folklore that there is a relationship between moon phase and disasters that has a usefulness in everyday life.[5]

Notes

1. Only 56 of the 66 mine disasters mentioned in the *World Almanac* were utilized in this analysis. Prior to 1968, the *World Almanac* recorded only disasters in which 60 or more lives were lost. After 1968, all mine disasters in which five or more lives were lost were recorded. We have analyzed only data in which 60 or more lives were lost. However, the data eliminated do not affect our conclusions. On the contrary, not one of the ten dates omitted occurred on one of the five days centered at the full moon.

It should also be pointed out that where a disaster occurred over several days, the first day that the disaster occurred was the date we recorded.

2. The negative finding regarding notable aircraft disasters is consistent with Kelly, Saklofske, and Culver (1990), who found no relationship between all fatal aircraft accidents (one or more people killed) and moon phase in Canada over an eight-year period.

3. A spectral analysis would have been a more powerful statistical tool than chi square to analyze the present data. Unfortunately, the long time period covered and/or small sample sizes of our studies preclude such an analysis. The study was conducted, however, with the statistical power of the analysis in mind. The sample size for the 4 × 8 contingency table was $n = 426$. We decided that an effect size described by Cohen (1977) as "moderately small" ($w = 0.20$, Cramer's $\varphi' = 0.12$) would be of sufficient importance for the purposes of our study. In addition, because of the exploratory nature of looking for lunar relationships in this area we adopted a less stringent significance level ($\alpha = 0.10$). The power of our (4 × 8) analysis for detecting the abovementioned effect size ($\alpha = 0.10$) is 0.74. Similarly, the one-factor chi-square across the four phases for all disasters ($n = 426$) under consideration has power = 0.97 for a noticeably useful relationship ($w = 0.20$), but this analysis would have only a one-in-two chance of picking up a weaker effect ($w = 0.10$) The one-factor chi-square across *moon-day* for all disasters ($n = 612$) under consideration has power = 0.80 for $w = 0.20$ but only a one-in-three chance of detecting a weaker effect

(w = 0.10). All analyses have too small a sample size to detect a *weak* lunar relationship with any degree of confidence.

4. For an agnostic but contrary view of the substantial issues involved in investigating lunar effects on human behavior see Cyr and Kalpin (1987).

5. We would like to thank James Rotton for critical comments on an earlier draft of this paper.

References

Culver, R., J. Rotton, and I. W. Kelly. 1988. Moon mechanisms and myths: A critical appraisal of explanations of purported lunar effects on human behavior. *Psychological Reports*, 62:683-710.

Coates, W., D. Jehle, and E. Cottington. 1989. Trauma and the full moon: A waning theory. *Annals of Emergency Medicine*, 18(7):763-765, July.

Cohen, J. 1977. *Statistical Power Analysis for the Behavioral Sciences* (rev. ed.). New York: Academic Press.

Cyr, J. J., and R. A. Kalpin. 1987. The lunar-lunacy relationship: A poorly evaluated hypothesis. *Psychological Reports*, 62:391-400.

Kelly, I. W., J. Rotton, and R. Culver. 1985. The moon was full and nothing happened. SKEPTICAL INQUIRER, 10(2):129-143.

Kelly, I. W., D. H. Saklofske, and R. Culver. 1990. Aircraft accidents and disasters and the full moon: No relationship. *Psychology*, forthcoming.

Lieber, A. L. 1978. *The Lunar Effect*. Garden City, N.Y.: Anchor Press/Doubleday.

Martens, R., I. W. Kelly, and D. H. Saklofske. 1988. Lunar phase and birthrate: A 50-year critical review. *Psychological Reports*, 63:923-934.

McFarlane, J., C. Martin, and T. Williams. 1988. Mood fluctuations, women versus men, and menstrual versus other cycles. *Psychology of Women Quarterly*, 12:201-223.

World Almanac. 1987. *The World Almanac and Book of Facts 1988*. New York: World Almanac.

Ivan Kelly and Don Saklofske are professors in educational psychology at the University of Saskatchewan, Canada. Roger Culver is an astronomer at Colorado State University.

Order your 101-page Skeptical Inquirer **INDEX** today!

Please send me _____ Skeptical Inquirer Index(es) (10 vols.—1976-1986) at $10.00 each. **Total $**_____

(Outside the U.S. and Canada add $1.00 postage, $2.50 airmail.)

Visa and MasterCard customers call toll-free **800-634-1610**
(In NYS call 716-834-3222)

Check enclosed ☐ Charge my MasterCard ☐ Visa ☐

_____ Exp. _____

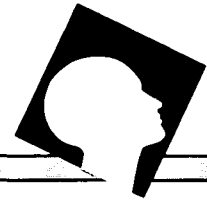
Name_____
(PLEASE PRINT)

Address_____

City _____ State _____ Zip _____

SKEPTICAL INQUIRER, Box 229, Buffalo, New York 14215-0229

Reviews



Demystifying Hypnosis

Hypnosis: The Cognitive-Behavioral Perspective. Edited by Nicholas P. Spanos and John F. Chaves. Prometheus Books, 1989. 511 pp. Cloth $34.95.

Lewis Jones

If I tell you what I'm thinking or feeling, how do you know I'm speaking the truth? For centuries philosophers have chewed over the Problem of Private Events, and it has been tackled from the isolation of the philosopher's study, by sittin' and thinkin'.

And then the experimental psychologist came along, took the problem away from the philosopher, and shook it by the scruff of the neck.

Take statements like these: "I don't remember where I heard that"; "I've forgotten the word"; "I don't know why I did that"; "It doesn't hurt"; "I've gone deaf"; "I can't see it"; "It's red."

There are two ways of finding out whether these statements are true. One is to simply ask the speaker and believe whatever he says. The other is to sit down and figure out independent ways of getting at the truth. On the face of things, many of these statements may seem to be beyond investigation, but tackling them has produced some of the most ingenious testing procedures devised by experimental psychologists. (Yes, I'm afraid the word *experimental* is necessary.)

Hypnosis is a case in point, and *Hypnosis*, a collection of essays and studies edited by Nicholas Spanos and John Chaves, is well stocked with the results of tests. There are 19 papers in all, and the text is backed up by about 1,500 references.

What is hypnosis? Spanos and Chaves point out that for most laypeople and many research workers and health-care providers, it involves a trance, or at least an altered state of conciousness that is brought on by repetitive verbal rituals, known as the induction procedure. The person hypnotized allegedly becomes a passive automaton and comes under the control of the hypnotist.

The vogue began with the German physician Anton Mesmer in the late eighteenth century. At that time, his "animal magnetism' was investigated by the Royal Commission in France. Their experiments led them to the conclusion that the patient's "imagination and expectant desire" were sufficient to account for Mesmer's results.

Not that this stopped the march of mesmerism. It became entwined with a range of other occult beliefs and got a new lease on life. And now here we are toward the end of the twentieth century with the American Psychological Association sheltering a full-fledged Division of Psychological Hypnosis (are there other kinds?).

It is about 40 years now since T. R. Sarbin (one of this book's contributors) threw out the long-held

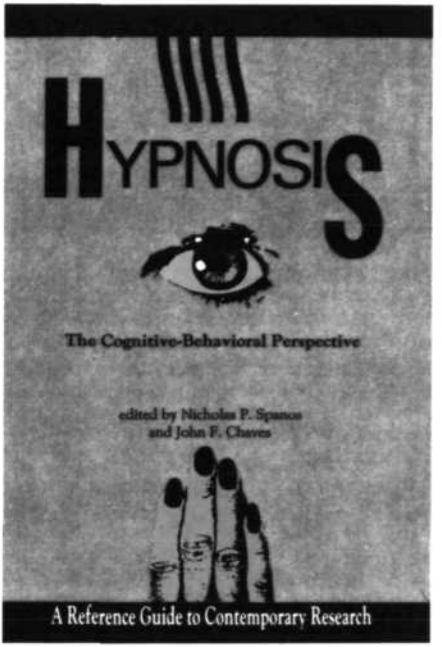
belief in an "altered state of consciousness." And in the 1960s, T. X. Barber finally unsheathed the simple weapon that had been the death of so many groundless belief systems—the control group. One group was given a hypnotic induction procedure, a second group was asked to just imagine whatever was suggested to them, and a third group was simply urged to do their best to respond to suggestions.

"Hypnotized subjects responded to suggestions for age regression, hallucination, amnesia, pain reduction, and so forth—but so did the controls. And those who were simply told, "Do your best," did just as well as those who were "hypnotized." (I'm afraid the word *hypnotized* often has to go about with quotes acting as bodyguards.) Other researchers soon found that nonhypnotic subjects also did as well in producing "so-called immoral, self-destructive, or criminal behavior." It turned out that all subjects knew perfectly well that they would be safe from harm since they were aware they were taking part in experiments in an academic setting.

The subjects who did best in tests of hypnotic susceptibility were those who had been asked to *pretend* to be hypnotized. And hypnotic performance could be noticeably improved with some training. In other words, what had been thought of as a genetically endowed susceptibility was in fact a skill that could be learned.

Some fairly recent work has suggested that hypnotic susceptibility might be related to the trait of "absorption." ("Do you become completely absorbed and 'lose yourself' in watching a film, reading a book, listening to music?") But this too has now fallen by the wayside.

The fact is that hypnotic subjects know how hypnotic subjects are supposed to behave, and their general



goal is "to behave like a hypnotized person as this is continuously defined by the operator and understood by the subject" (R. W. White). For many subjects, merely defining the situation as hypnosis results in their classifying everyday behaviors like arm-raising as "involuntary." And T. X. Barber and D. S. Calverley made the amusing discovery that when a group of subjects were told that hypnosis was a test of gullibility, "hypnotic responding was virtually nullified."

When a subject is told that he will perform a certain action on cue after "waking up," is that action really beyond his control? Thirteen subjects were told to scratch their ear when they heard the word *psychology*, and they all did so. The hypnotist gave the impression that the experiment was over and had an informal conversation with a colleague in which the cue word was used: Nine of the subjects failed to respond. When the hypnotist then intimated that the experiment was still in progress, seven of those nine began

responding again. Another experimenter found that all post-hypnotic responding stopped when he left the room, apparently to attend an emergency.

In a similar experiment, Spanos and his associates found that subjects all dutifully coughed when they heard the word *psychology* in the experimental situation. But Spanos had arranged for a confederate to pose as a lost student asking for the psychology department. None of the subjects responded to the cue word.

I. F. Hoyt and J. F. Kihlstrom have concluded that "post-hypnotic information-processing is no different from nonhypnotic information-processing."

Subjects are sometimes given a post-hypnotic suggestion that they will not remember certain key words. Do they really forget these words? According to their verbal reports, they do. But according to their galvanic skin resistance, they don't.

In another example, subjects are given a list of words to learn. They are then "hypnotized" and given another list to learn. This second list has been constructed so as to interfere with the recall of the first list. Some subjects are then given a post-hypnotic amnesia suggestion to forget the second list. Other subjects are given no suggestion. When recall is tested later, subjects in both groups recall the first list at the same level. William C. Coe asks simply: "Is their amnesia credible?"

Spanos and others found that between 40 and 63 percent of their "amnesic" subjects later admitted that they had suppressed their reports. Coe writes: "Perhaps we should wonder how many did not confess?" And he comments: "The 'skill' they employ is not *reporting*." Not surprisingly, simulators are just as successful in employing this "skill."

Furthermore, most amnesics will confess to remembering more and more of the "forgotten" material under adequate pressure, "to the extent that they have nothing left to remember when amnesia is lifted."

Coe's conclusion on the result of post-hypnotic amnesia studies: "Responsive hypnotic subjects can be viewed as engaged in strategic enactment to fulfill the role of a good hypnotic subject as they perceived it."

Hypnotic deafness? If you get someone to read or speak into a microphone and feed back the sound of his voice into headphones after a momentary time lag, his speech will become seriously disrupted, with slurring, hesitations, and stammering. Hypnotic subjects claiming to be deaf show the same disruptions.

"High-susceptible" subjects and "low-susceptible" subjects have been told that they are deaf in one ear. Then pairs of words have been presented simultaneously, one member of the pair to each ear. Subjects should only be able to hear words presented to their "good" ear. In fact, both groups show the same number of intrusions from the "deaf" ear.

Color-blindness? When hypnotically color-blind subjects are shown the Isihara "malingering" card, they report that they can't see the number that in fact can be seen by all genuinely red/green-blind individuals.

Post-hypnotic negative hallucinations? Hypnotically blind subjects continue to process the visual information they claim not to see.

There are a number of standard ways of reducing the effects of pain (e.g., self-distraction, placebos, relaxation, cognitive re-interpretation, positive imagery). Does hypnosis do a better job?

Perhaps the best-known (and most often quoted) person to use mesmerism for surgical pain was the

nineteenth-century physician John Esdaile. He reported thousands of minor surgical procedures. Medical workers in Austria, in France, and in the United States tried to replicate his successes. They all failed.

Like the acupuncture miracle-workers of China, Esdaile plied his trade in a distant clime (in his case, India)—"far from the din of skeptical colleagues" in the polite phrase of John Chaves.

When the time came to investigate Esdaile's achievements, the Bengal government appointed a commission. Esdaile selected only ten patients for observation. Three were discarded because they appeared to be unresponsive to his techniques. One case was "inconclusive." Three showed "convulsive movements of the upper limbs, writhing of the body, distortion of the features, giving the face a hideous expression of suppressed agony. . . ." The remaining three showed no outward sign of pain, though two of them showed erratic pulse rates. This was hardly the wonder anesthetic that everyone had been led to expect.

Esdaile's tiny (and selective) sample did not take into account the wide variation in different people's ability to tolerate pain. More recent attempts to use hypnotic analgesia have suffered the same flaws that have ruined the claims for acupuncture analgesia: the treatment has almost always been accompanied by chemical anesthetics, sedation, or local anesthesia.

In fact, suggestions for reducing the perception of pain can be effective whether accompanied by hypnotic induction or not. And, sadly, as Chaves points out, "a recent review of significant developments in medical hypnosis over the past 25 years fails to cite a single report of hypnoanalgesia. . . ."

Joyce L. D'Eon reports that in childbirth "hypnotic procedures have failed to meet the grandiose claims that have sometimes been made for them." Without the counter-check of a control group, it is all too easy to attribute an easy birth to the use of hypnosis, because "anywhere from 9 to 24 percent of women experience relatively painless childbirth without any intervention."

'Hypnotized' subjects responded to suggestions for age regression, hallucinations, amnesia, pain reduction, and so forth—but so did the controls. And those who were simply told 'Do your best' did just as well.

But—sadly again—"it is unlikely that any psychological techniques, whether labeled 'hypnosis' or 'prepared childbirth training,' will be entirely effective in reducing the pain in childbirth for most women."

Richard F. Q. Johnson asked 42 prominent researchers if they had ever tried to produce blisters by hypnotic suggestion. Seven said they had obtained positive results. But none had published their results, and they were very skeptical of their findings. They suspected that highly motivated subjects might secretly injure themselves to produce the results the hypnotist wanted.

Nevertheless, further research is called for, especially comparing normal subjects with those who have a sensitive skin. After all, anxiety is associated with the production and intensity of some skin ailments, such as hives.

Nearly all cases of religious stigmata can be explained in terms of

deliberate self-injury. The bleedings are brought to the attention of investigators only after they have begun, and it is almost impossible to keep a 24-hour watch on the subjects.

Warts? If they are left untreated, they will generally go away of their own accord after two or three years. In a controlled study, 17 patients with warts on both sides of their bodies were given hypnotic induction, then told that the warts would disappear from one side. Some warts did in fact go away—from both sides of the body. But any treatment that the patient believes in is likely to produce results just as dramatic as those claimed for hypnosis.

Johnson summarizes: "The skin may at times be strongly influenced by thinking and suggestion. Nevertheless, the precise relationship between verbal suggestion and changes in the skin has yet to be determined."

Hendrikus J. Stam reports: "The use of hypnosis for the treatment of cancer pain, like other psychological techniques for the treatment of this problem, has remained largely untested. The bulk of this literature is in the form of case reports." His conclusions offer little hope: "Where does this leave the literature on the treatment of cancer pain? More or less where it began, unfortunately. The lack of systematic studies and the continued exaggerated claims made for this technique have left it in scientific and therapeutic limbo."

As for the treatment of nausea and vomiting, "the available research data have yet to indicate any advantage for hypnosis over standard relaxation or systematic desensitization treatments."

How about treatment of the cancer itself? "This large and diverse literature on hypnosis and cancer does not shed much light on our understanding of either hypnosis or cancer. It is crippled by a lack of sophisticated research, weakened by the strongly 'essentialist' preconceptions brought to the topic by the authors, and is doomed to obscurity by virtue of its post-hoc conclusion." There is no support, Stam concludes, "for the claims that psychological techniques actually reject or contain cancer or otherwise lead to its regression."

The likeliest result of allowing the police to use hypnotists would be 'the confident reporting of inaccurate information.'

Where does the law stand in all this? In the case of K. Bianchi, the so-called Hillside Strangler, the Los Angeles courts gave a curious solidity to the spirit form known as hypnosis. The law ruled that testimony from hypnotized witnesses was not admissible in court. As H. P. de Groot and M. I. Gwynn conclude in their discussion of the case, "It makes little sense to ask whether or not Bianchi was 'really hypnotized,' because the construct 'hypnosis' has little utility as a scientific account of hypnotic responding."

In Canadian law, hypnotic suggestion, along with such influences as drugs and alcohol, is allowed as a basis for the defense of "automatism." And the American Law Institute's Model Penal Code claims that anyone following hypnotic suggestion is not acting voluntarily, and so can't be considered criminally liable. But various American states offer differing viewpoints.

In England, a judge in Maidstone has ruled that the testimony of four

witnesses was not admissible in court because they had been previously "hypnotized."

By contrast, the cognitive-behavioral point of view takes the position that the actions of a "hypnotized" subject are voluntary. T. X. Barber has made the point that explaining a hypnotic subject's behavior in terms of a trance or altered state of consciousness is like explaining a shaman's behavior in terms of spirit possession.

As for hypnotizing witnesses to get at the facts, "There is no conclusive evidence, either anecdotal or experimental, to indicate that hypnosis can act as a 'truth serum' " (G. F. Wagstaff). There is not even any known method for detecting whether anyone is simulating "hypnosis" or not.

The likeliest result of allowing the police to use hypnotists would be "the confident reporting of inaccurate information" (P. W. Sheehan and J. Tilden).

All in all, "The kinds of experiences and behaviors that are elicited by hypnotic procedures can also be produced by placebos and other expectancy-modification procedures."

As long ago as 1962, T. R. Sarbin proposed that the term *hypnosis* be stricken from the professional vocabulary of psychology. That day has still not come, although the cognitive skills involved are being more often referred to nowadays by such terms as *goal-directed fantasy* or *think-with* suggestions.

Hypnosis was born at a time when theological explanations were just beginning to give way to the rationality rules of science. So in the late twentieth century, who is it who still hangs onto this concept of human conduct as a function of strange internal forces and a vocabulary more suited to occult mysteries? The answer turns out to be *the clinicians.*

William C. Coe's study of hypnosis journals is revealing. "It seems that the vast majority of clinicians prefer using special state concepts in vague ways, perhaps naively, or perhaps to mystify purposely. It seems equally clear that the vast majority of experimental investigators avoid using special state concepts."

It appears that "the opaqueness and vagueness of special state concepts allow the aura of mystery and power long associated with hypnosis and hypnotists to remain alive."

From a scientific viewpoint, "Hypnotic induction rituals are viewed as historical curiosities that reflect outmoded nineteenth-century attempts to conceptualize the behaviors associated with this topic as linked in some way to sleep."

"In short," say Spanos and Chaves, "clinical hypnosis as a research area appears to be at roughly the same point as experimental hypnosis research before Barber began his systematic controlled experimentation in the late 1950s."

Alas, this richly stocked tome provides no index to help readers refer back to anything they've read. So be warned—you'll need to make up your own index as you go along.

Nevertheless, this book, with its hundreds of follow-up references, will tell you pretty much anything you need to know about hypnosis and its standing in 1989. Outside the professional journals, it is now the definitive source of information on the subject.

Lewis Jones is a London-based writer and editor.

The 'Communion' Movie And Its Would-be Mystic

Communion (the movie)

Ronald D. Story

When I wrote *UFOs and the Limits of Science* (Morrow, 1981), I went as far as I could to honestly support the UFO phenomenon as a genuine mystery. Actually, I still believe it is, but a mystery of the mind, not a physical anomaly. I now have zero faith in the premise that UFOs represent anything special in external reality other than misperceptions colored by cultural influences.

Whitley Strieber's books *Communion* (Morrow, 1987) and *Transformation* (Morrow, 1988) serve as testimony to what Maya Pines stated in *The Brain Changers: Scientists and the New Mind Control* (Harcourt Brace Jovanovich, 1973): "As a nation, we are turning inward. Through drugs, meditation, alpha training, and other means, more people than ever before are trying to change their mental functions."

Whitley Strieber, like Shirley MacLaine, appeals to this inner escapism. It has been said that our era of high technology has spawned a new search for the spiritual. Unfortunately, in doublespeak, the word *spiritual* covers a lot of nonsense that is difficult to define, but you know it when you hear it.

Strieber, in my view, represents a new twist to an old theme, recast in terms of modern space-age (or New Age) symbols. Jung would have loved the symbolism; and it is a pity that Freud is not around to interpret Strieber's dreams. I have no doubt that these dreams, called "visions" by mystics, are delusions that spring from the unconscious mind. Strieber suspected as much; but what would *you* rather believe if you were in his shoes: that your mind was playing tricks or that you were a "chosen one" intermittently beamed up to a higher realm of being?

It is also possible, following the incredible success of *Communion* (the book), that Strieber has nurtured a natural fantasy-prone personality (as a tool of his craft) through a form of meditation that produces striking hallucinations. Perhaps through attempting to expand his consciousness into the mystic realm, he has rattled a cage or two, deep within his unconscious, letting some of his own demons out to roam loose in the night.

An admirably honest view of the *Communion* film, in *Movies USA* magazine (vol. 3, no. 1, 1989), states: "Academy award winner Christopher Walken stars as Whitley Strieber, the author who may or may not have been kidnapped by aliens. Based on Strieber's novel, *Communion* [the movie] examines the self-doubts and fear of madness that come with an extreme experience. As the plot unravels, the audience must figure out which is furthest out there—the author or the aliens." Another typical review called the movie "self-indulgent" and "ponderous and agonizingly slow"; it quickly disappeared from theaters.

By his own admission, Strieber has had trouble distinguishing fantasy

from reality; so what good would a so-called lie-detector (polygraph) test be? Likewise, his time-regression hypnosis, which is portrayed in the movie as confirming Strieber's otherworldly visions. Hypnosis is a state of concentrated attention and heightened suggestibility in which the imagination can literally run wild. That is why, as *Newsweek* reported, March 22, 1982, the "California Supreme Court barred from giving evidence in court virtually all witnesses who had been hypnotized. The problem, the judges said, is that hypnotized persons are especially susceptible to suggestion; once in a trance they often produce 'pseudo-memories or fantasies' that they later swear are true." Recent articles in the SKEPTICAL INQUIRER have made the same point, e.g., Baker, Winter 1987-88; Spanos, Winter 1987-88.)

The author of many horror-fiction novels, can Strieber still be selling fiction but at the same time be convinced it is fact? I do believe that he is giving an honest account of his hallucinations and delusions, which he calls his *experiences*, but that they are figments of an overactive imagination—not real physical beings that follow him back and forth between his cabin in upstate New York and his Greenwich Village apartment. Dreams of goblins become "encounters" with "visitors." One reason *Communion*, the book, was so successful is that it fits neatly into the genre of the so-called New Age, which usually includes a distrust of science and complete openness to "spiritual awareness."

What surprised me most about *Communion*, the movie, was that instead of convincing the audience that the visitors were real (which may or may not have been the intention), what came shining through to me was a portrayal of the main character as

some kind of nut! I was especially surprised because Strieber himself wrote the screenplay, which was not true to the book.

UFO-abductionist Budd Hopkins (author of *Intruders*, Random House, 1987), to whom Strieber first reported his experiences, was conspicuously absent from the movie. (This was not surprising in light of their later feud over who should be America's leading guru in the UFO-abduction field.) Instead, a woman (a psychiatrist/psychologist, who also seemed to be a believer in literal UFO-abduction tales) conducted the hypnotic sessions with Strieber and referred him to the UFO-abductee support group.

After the initial success of *Communion* (topping the *New York Times* bestseller list for months in 1987), in which Strieber admits his inability to distinguish between what is objectively real and what may be mental illness, he writes in the sequel, *Transformation* (1988): "My experience has come to include too many witnesses for me to consider that it is internal to my mind." But witnesses to what? Nowhere in Strieber's

books—or in the movie—is he ever accompanied by anyone while in the presence of the "visitors." Witnesses to lights and sounds, perhaps, but not the visitors themselves, with the exception of his young son, whom I believe was influenced by the father or vice versa. Actually, there is one other exception, which is published in *Transformation* and in the publicity release that is sent to reviewers by the publisher. Believe it or not, the claim is that Morrow senior editor Bruce Lee saw two of the visitors, wearing sunglasses, leafing through the book *Communion* in a Manhattan bookstore!

Strieber also claims that the visitors "are already having a staggering but largely hidden impact on our society." But where is the impact? One of the major points always raised by skeptics is that the supposed visitors have not contributed anything to our society in the 40 years of their alleged existence. If they're really here, then why don't they help us out? Are they waiting for us to go broke, starve to death, or kill each other off, so they can inherit a dead and polluted planet?

What Strieber suggests is the old parallel-universe routine, in which the visitors kind of fade in and out of another dimension. But, again, why? To test our patience? It doesn't make sense.

The most Strieber tells us is that the visitors are having communion with one soul at a time. A Mississippi fisherman one night and an Arizona woodcutter the next; but all must wait their turn. (Remember that 99 percent of all UFO abductions occur while the chosen one is home in bed at night, and usually in the middle of a dream.) And, as has always been the case with spiritualism, the most profound messages we ever get during these contacts with superior intelligences or mystical beings are things like, "Don't eat chocolate" or "Just hang in there, and everything will be okay."

Is Strieber's modus operandi to mix delusions with reality. Author Erich von Däniken did this back in 1968 when he created a furor over alleged ancient astronauts. The story didn't do very well as fiction, but it received considerable attention when it was repackaged and sold as "nonfiction." However, von Däniken never claimed special status as a New Age mystic able to make direct contact with aliens or other ethereal beings.

However, an interesting parallel was contained in von Däniken's *Miracles of the Gods* (Delacorte, 1975)—the notion that visions and religious miracles were somehow beamed down to us by extraterrestrials. The jacket copy of *Miracles* says that "overripe intelligences are sending energetic thought impulses to us, their brothers and sisters of the same heritage. These impulses are intended to stimulate and enlarge our consciousness." Von Däniken quoted a West German opinion poll that found that "53 percent of the people questioned believed in miracles and visions."

Perhaps an even more fitting precedent was that set by George Adamski (1891-1965) in the early 1950s. Adamski also began as a fiction writer, but nothing much happened until he claimed actual contact with Venusians in his bestseller *Flying Saucers Have Landed* (British Book Centre, 1953). Adamski's aliens were not of the bug-eyed fetus type that are in vogue today. The first one was described as a beardless, suntanned version of Jesus (with long blond hair), wearing a ski suit and sandals. The primary purpose of the Venusians' visit to Earth was to warn us of potential nuclear disaster. This seemed to be one of Strieber's concerns as well, but nowadays his aliens are more inter-

nowadays his aliens are more interested in the environment—particularly the ozone layer.

To repeat what Jüng said about another contactee, about 30 years ago, Strieber "comes like a gift to the psychologist." Like Orfeo Angelucci, Strieber "reveals . . . clearly the unconscious background of the UFO phenomenon." Unlike such people as Betty and Barney Hill and Travis Walton, Strieber tells a more complete story.

A careful reading of his books suggests that the "visitor experience" is a purely mental activity, composed of exactly the same stuff that dreams are made of. Anyone who reads Freud's *Interpretation of Dreams* (1900) and Joseph Campbell's *Hero with a Thousand Faces* (1949) should have little difficulty recognizing the obvious parallels and telltale signs that reveal the mythical nature of the UFO-abduction stories. But if we are not willing or able to face the obvious, then maybe we should forget the ozone layer and start worrying about the depletion of common sense.

Ronald Story is a technical writer, editor of The Encyclopedia of UFOs, *and author of* Space Gods Revealed. *He lives in Tucson.*

Battling Scams, Swindles, and Schemes

Don't Get Taken! by Robert A. Steiner. Wide-Awake Books, Box 659, El Cerrito, CA 94530, 1989. 206 pp. Paper $14.95.

Kent Harker

Like a country song, the title tells the whole story. *Don't Get Taken!* is fun to read. Regardless of your familiarity with the skeptical literature, you are not immune to the well-calculated designs of the con artist. "Al Capone . . . gave $50,000 to a con" (p. 7).

The book begins where many of us got our first painful childhood introduction to a scam: from the *grifters* (those who operate gambling devices at carnivals). The experience young Bob Steiner had at his first carnival launched him on something of a crusade. He then learned the tricks of the trade from books and legitimate sleight-of-hand artists and soon was performing on stage. *Don't Get Taken!* is essentially the accumulation of Steiner's 20 years of hands-on experience in the trenches tracking psychic scams and other swindles.

Steiner, who was a founder and first chair of Bay Area Skeptics and the 1988-1989 national president of the Society of American Magicians, chose a meaningful title for his book, and his chapter titles are no less so. "Astrology Is Bigotry," Chapter 6, doesn't leave one in the dark about where Steiner stands. Think about

what bigotry means. This kind of 50-caliber rat-a-tat is classic Steiner. No wimps allowed. But the *blitzkrieg* quality is attenuated by an echo in the back of one's head, the one that says this book has something to do with avoiding financial and emotional harm. That echo will keep even committed believers on track when other approaches might have derailed them miles before.

We often fall into the snare of trying to refute the examples of "psychics" and other charlatans on their own territory, without looking on the other side of the coin, as it were. Steiner turns that coin over and slaps it on the table: the chapter called "Hitler Was an Aries" is typical of Steiner's looks at the dull side of the coin, the side that does not reflect the wonders of astrology—the side the soothsayers would rather we not consider. For example, this side says that an Aries, according to astrologer Linda Goodman, "can't lie worth a tinker" (p. 41). You might also be interested in the noble astrological traits of Jim Jones, Charles Manson, and Joseph Goebbels in the same chapter.

You'll find there is not much good in the scams. There is plenty of bad and some downright ugly you didn't know about. We've all heard of those who read tea leaves, bones, tarot, and other paraphernalia, but have you heard of the "Blood Readers"? Your blood type is more reliable than the stars to augur your path, according to the practitioners. You will learn what type-O carriers have in common with mafiosi. If you're tired of "What's your sign?" you might chance "I'm AB-negative, and I'll bet you are an O-positive" to get the conversation going.

My favorite chapter is "Pyramid Schemes." I'm certain that even everyone in the Khmer Rouge has received a chain letter. We *know* the only one who can win is the one who starts the whole thing, but few of us have ever stopped to actually do some calculations. We know the numbers quickly exhaust the population of the whole planet, so it doesn't seem worth the trouble to run the numbers out. Even given this intuitive awareness, actually seeing the astronomical figures is staggering. Have you any idea what $500 *nonillion* is? If Steiner had any sense he would quit trying to make money writing books and start a chain letter. "You could be a millionaire. All you have to do is be a scoundrel"—this is what someone told Steiner after he had posed as a psychic and later told the audience it was a hoax (p. 17).

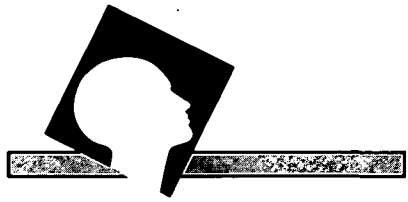
Steiner has given demonstrations of psychic surgery to many medical groups and citizen-watch organizations. He was also in on the planning and execution of some of James Randi's faith-healing investigations. The chapter on this topic summarizes that work and whets the reader's craving for more information.

I wouldn't want to leave the impression that the hobnail boots on Steiner's pen, to mix a metaphor, trample the pages like a bull in a china shop. There is always precision in Steiner's *Q.E.D.s*, and a generous amount of painted prose and human concern for the victims of the sleaziest crime—fraud.

Don't get taken! Get the book.

Kent Harker is editor of BASIS, *newsletter of the Bay Area Skeptics.*

Some Recent Books



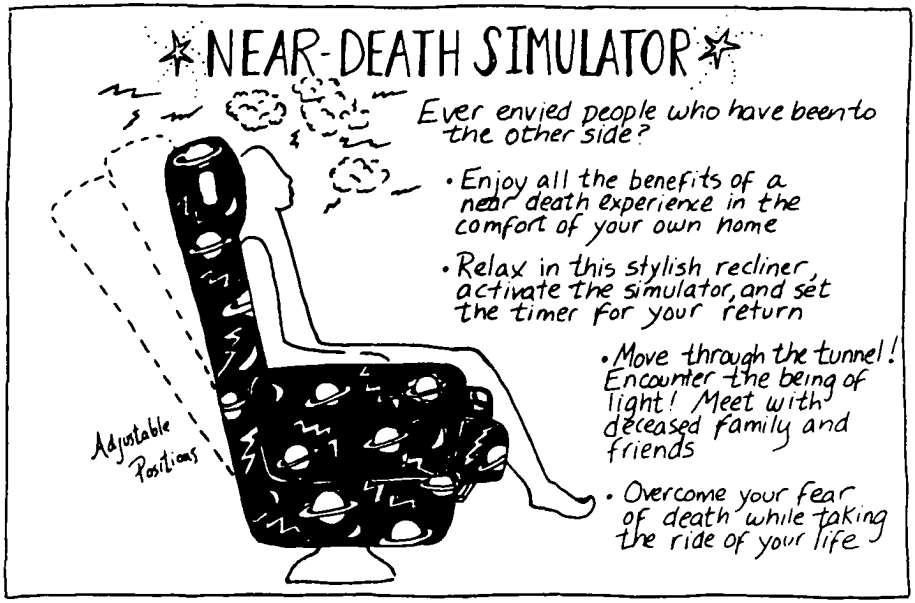
Alternate States of Consciousness: Unself, Otherself, and Superself. Hilary Evans. An exploration into the whole range of ASC experiences, from dreaming to religious ecstasy, hypnosis to amnesia, and near-death experiences to multiple personality. Sterling Publishing Co., 387 Park Ave., New York, NY 10016, 1989, 256 pp., $10.95 paper.

The Dual Brain, Religion, and the Unconscious. Sim C. Liddon, M.D. Psychiatrist Liddon attempts to introduce a new conceptual framework for gaining a rational understanding of subjective human experience—emotions, desires, intentions, values. The author seeks ways to include nonrational aspects of human nature into a matrix consistent with scientific understanding without resorting either to mystical explanations or to reducing experience to mere chemical process. Uses data from split-brain experiments in combination with knowledge of the symbolic process. Prometheus Books, 700 E. Amherst St., Buffalo, NY 14215, 1989, 265 pp., $21.95 cloth.

In Defence of Science: Science, Technology, and Politics in Modern Society. J. W. Grove. Essays on the role of science in the modern world devotes lengthy sections to perversions of science (e.g., the IQ controversy), pseudoscience (e.g., Velikovsky and parapsychology), and anti-science (e.g., creationism, and the intellectual revolt against science, on which Professor Grove wrote in our Fall 1988 issue). University of Toronto Press, 340 Nagel Drive, Buffalo, NY 14225, 1989, 229 pp., $35 cloth, $14.95 paper.

On Being a Scientist. Committee on the Conduct of Science, Council of the National Academy of Sciences. First-of-its-kind booklet provides guidance to science graduate students on proper conduct of science. Among the questions addressed: How can a scientist avoid self-delusion in making observations? How should errors in scientific papers be corrected? What should a researcher do who suspects a colleague of misconduct? What contributions should coauthorship imply? National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418, 1989). 22 pp., $5.00 paper.

Psychology, 2nd ed. Carole Wade and Carol Travis. Introductory psychology textbook provides a refreshing, unifying approach to psychology based on critical thinking. The intention is to imbue students "with both intellectual cautiousness and an open mind" so they can better examine for themselves the complex questions and competing claims (some of them pop philosophies with a "quasi-scientific veneer") that make it increasingly difficult for the public to distinguish "scientific psychology" from "psychobabble." Covers all aspects of a first-year course in psychology but always from a viewpoint of critical thinking rather than mere recitation of facts


NEAR-DEATH SIMULATOR
Ever envied people who have been to the other side?
• Enjoy all the benefits of a near death experience in the comfort of your own home
• Relax in this stylish recliner, activate the simulator, and set the timer for your return
• Move through the tunnel! Encounter the being of light! Meet with deceased family and friends
• Overcome your fear of death while taking the ride of your life
Adjustable Positions

From *Shopping for Enlightenment*, ©1989 by Laura Eisen and Mark Frey. Published by Celestial Arts, Berkeley, Calif.

and information. Includes many short sections on such subjects as Science vs. Pseudoscience; Extrasensory Perception: Reality or Illusion?; Sense and Nonsense About Human Experience; and Thinking Critically and Creatively. Harper & Row, New York, 1990. 698 pp. + appendix, glossary, bibliography, indexes. $40.50, cloth.

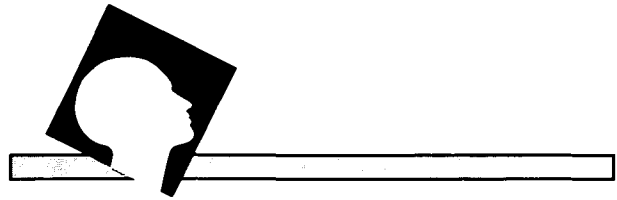
The Search for Psychic Power: ESP and Parapsychology Revisited. C. E. M. Hansel. Psychologist and recognized world authority on, and critic of, ESP and parapsychology here updates his earlier *ESP and Parapsychology: A Critical Re-Evaluation* (1980) with further examinations of serious parapsychology experiments, plus comments by critics of the earlier work and his responses to them. Hansel, as always, subjects experimental protocols to detailed methodological examination and assesses claims against strict criteria for scientific acceptance, foremost among them being repeatability. Prometheus Books, Buffalo, N.Y., 1989, 308 pp., $24.95 cloth.

Shopping for Enlightenment: The Whole Universe Catalog. Laura Eisen and Mark Frey. A humorous look at New Age fads and fancies, through a series of tongue-in-cheek cartoon "ads" for dozens of New Age accessories, such as the Chakkra Balancer, Astral Travel Meter, Near-Death Simulator, Past-Life Programmer, and Aura-Cleansing Gel. Celestial Arts, P.O. Box 7327, Berkeley, CA 94707, 1989, 66 pp., $5.95 paper.

Subterranean Worlds: 100,000 Years of Dragons, Dwarfs, the Dead, Lost Races and UFOs from Inside the Earth. Walter Kafton-Minkel. A "sometimes entertaining, sometimes completely ludicrous" exploration of human obsessions about subterranean worlds. This examination of lore about the interior of the earth reveals much about extremes of the human imagination and capacity for delusion. Loompanics Unlimited, P.O. Box 1197, Port Townsend, WA 98368, 1989, 306 pp., $18.95 paper.

—*K.F.*

Articles Of Note



Ansley, David. "The Dream Machine." *West* magazine (*San Jose Mercury News*), August 27, 1989, pp. 8-15. Investigative feature on the late inventor Joseph Papp and his "thermonuclear plasma engine" perpetual-motion machine.

Campbell, Steuart. "Reflections on the Knock Apparition." *New Humanist*, June 1988, pp. 20-21. Proposal of an astronomical source (Jupiter) for the Knock apparition of 1879.

Coates, Wendy, Dietrich Jehle, and Eric Cottington. "Trauma and the Full Moon: A Waning Theory." *Annals of Emergency Medicine*, 18:7, July 1989, 763-765. Retrospective study of relationship between moon phase and major trauma reviews 1,444 trauma victims admitted to Allegheny General Hospital, Pittsburgh, during one calendar year. Full moons were defined as three-day period in the 29.531-day lunar cycle centered on the day of full moon. There was no statistical difference in the number of trauma admissions between the full-moon (3.58 per day) and non-full-moon days (3.98 per day). There was likewise no statistical difference in mortality rate, mean Injury Severity Score, or mean length of stay. Victims of violence were admitted at a similar frequency on full-moon (0.444 per day) and non-full-moon days (0.555). "We conclude that the belief in the deleterious effects of the full moon on major trauma is statistically unfounded."

Diamond, Jared. "Bittersweet Dreams of Glory." *Natural History*, November 1989, pp. 28-36. Sympathetic exploration into what motivated Robert Peary to claim that he had reached the North Pole. The National Geographic Society has published a report of an investigation it sponsored that supports Peary's assertions ("New Evidence Places Peary at the Pole," *National Geographic*, January 1990, pp. 44-61).

Donnelly, F. K. "Secular vs. Sacred History: The Case of the World History Chart." *History and Social Science Teacher* (Toronto, Canada), Fall 1989. pp. 40-41. History teacher reports that the widely sold eight-foot-long "World History Chart" (International Timeline, Vienna, Virginia, 1985) presents "a narrow, sacred interpretation of certain periods of world chronology representing the unorthodox view of one small religious group." The line for North America says various Old Testament figures, including Noah and Adam and Eve, were all residents in the "New World." The timeline for Latin and South America includes "pseudo-historical" individuals like Lehi and Moroni. Further, there is an entry for the years A.D. 30 and 40 that reads, "The Ressurrected Christ Appears in the Americas." Notes Donnelly: "All this is straight out of the Book of Mormon. . . . Mormon chronology is presented as factual assertion." The chart "presents an odd combination of conventionally accepted chronology,

common errors and Velikovskian disaster cycles, along with a narrow, sectarian view of the Pre-Columbian history of the Americas."

Fishman, Steve. "Questions for the Cosmos." *New York Times Magazine*, November 26, 1989, pp. 50-55. Short feature on Princeton engineering dean emeritus Robert Jahn and his laboratory efforts to prove that ESP exists. Unfortunately the article provides little independent evaluation of Jahn's work. A short critical letter by Martin Gardner asking about replications appeared later (December 24, p. 4).

Frasca, Michael A. "Don't Blame the Moon." *Sky & Telescope*, October 1989, p. 340. Column reports on several of the many studies showing—contrary to folklore—no link between moon phase and homicides or other forms of human misbehavior.

Gregory, Richard L. "Alchemy of Matter and of Mind." *Nature*, 342:471-473, November 30, 1989. British neuropsychologist delves into Isaac Newton's attraction to the occult, yet finds much in common with the "power of symbols in our everyday life" today.

Heard, Alex. "Rolfing with Yeltsin." *New Republic*, October 9, 1989, pp. 11-13. Report on interactions between American and Soviet New Agers, especially Boris Yeltsin's recent U.S. visit sponsored by the Esalen Institute. Heard finds "a huge subculture of groups . . . devoted, full-time, to churning out kooky project ideas for fostering greater U.S.-Soviet understanding." Includes mentions of underwater rebirthing and the Pentagon Meditation Club. Heard decides such efforts aren't necessarily bad, but "none of these people must *ever* be allowed to run anything."

Ince, Susan. "Blaming the Victim." *Savvy Woman*, August 1989, pp. 82-83. Contends that some New Age practitioners overstate the power of positive thinking in curing illness. Includes mentions of popular authors Joan Borysenko and Bernie Siegel, who have "brought New Age 'blaming the victim' to America's medical mainstream."

Jones, Tony. "Science in the Bear-Pit." *New Scientist*, October 7, 1989, pp. 70-71. Excellent column on how John Mosely, program supervisor for Griffith Observatory's planetarium, tackles the problem of pseudoscience. He has created a one-hour planetarium program addressing irrational beliefs head on. He doesn't tell people their beliefs are rubbish, however, but attempts "a more human approach," pointing out inconsistencies, and the like.

Kraus, Carolyn. "Water Witching." *New Yorker*, October 9, 1989, pp. 97-124. Lengthy but readable report in typical *New Yorker* anecdotal, discursive fashion into dowsers and water-witchers. Nothing particularly evaluative in it, but filled with dowsers' lore and experiences and conflicts among themselves.

Marshall, Eliot. "Anthropologists Debate Tasaday Hoax Evidence." *Science*, 246:1113-1114, December 1, 1989. News report about anthropologists' concern over the Tasaday matter. The American Anthropological Association has now formed a panel under Fred Eggan to investigate.

Niebuhr, R. Gustav. "Millennium Fever: Prophets Proliferate, the End Is Near." *Wall Street Journal*, December 5, 1989, pp. 1, 5. Report on the rise of apocalyptic prophecy as the year 2000 nears.

Patterson, Robert. "Chelation Therapy and Uncle John." *Canadian Medical Association Journal*, 140:829-831. A young physician's uncle asks him about chelation therapy, and the doctor's examination of the claims finds little to recommend it.

Queenan, Joe. "Crystal Clear." *Forbes*, August 7, 1989, p. 52. *Forbes* examines every single New Age financial book (two dozen!) it found in two New Age bookstores. "New Age is actually a full-service crackpot movement and as such its tentacles reach into such far-flung areas as management, tax planning, and market investing." The books examined? "We can safely report that all are interchangeably moronic."

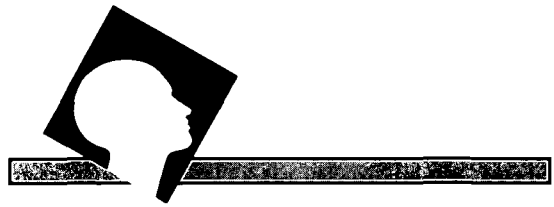
Sobel, Dava. "Dr. Zodiac." *Omni*, December 1989, pp. 62-72. Lengthy and uncritical report on highly speculative ideas of a British astronomy lecturer, Percy Seymour, proposing (but offering no data in support of his case) that Michel Gauquelin's neo-astrology correlations have a physical basis in geomagnetic effects of sun-planet interactions.

Synodinos, Nicolaos E. "Subliminal Stimulation: What Does the Public Think About It?" *Current Issues & Research in Advertising*, 1988, 11(1), 157-187. Survey of beliefs and attitudes of 500 adults toward "subliminal" stimulation.

Wheeler, Thomas D. "A Response to D. James Kennedy's Presentations on Creationism and Evolution on 'The John Ankerberg Show.'" (Manuscript, 86 pp., available from author at 426 Deerfield Lane, Louisville, KY 40207, for $3.50 to cover copying and postage.) A biochemistry professor's detailed analysis and refutation of six creationist television programs aired in late 1987 and since made available on videotape.

—*Kendrick Frazier*

Letters to the Editor



Myths about science

While Milton Rothman makes many good points and sensible statements ("Myths About Science . . .," *SI*, Fall 1989), his devotion to a belief in absolute knowledge is out of date. The modern philosophy of science rejects absolutism and believes that "scientific knowledge is the consensus of the scientific community" (Harold Brown, *Perception, Theory and Commitment*, London, 1979). Rothman writes: "Either we know *something* for sure or we know nothing at all." In fact we know nothing at all "for sure," but we hold various beliefs with varying degrees of confidence (a point Rothman does actually understand). I particularly object to Rothman's condemnation of Jacob Bronowski, who in my opinion got it right: "All information *is* imperfect" (my emphasis).

Rothman's examples are similarly imperfect. Mathematics is not concerned with reality; it is our invention. One plus one equals two (in base ten) because we say so, not because we know it. As for electrons, we don't really know what they consist of and we have invented the concepts of charge and fields. We *define* an electron (as Rothman admits), but our definition can only approximate the truth. Certainly we believe that the earth is not flat because the number of data that support this belief is vast. But to claim that the earth is not the center of the universe implies that one knows where that center is. In fact we believe that the universe has no center!

Rothman's over-reaction to mystics' claims that "nothing is known for sure" has led him to abandon a fundamental scientific principle. Instead of defending absolutism, he should have accepted that the claim is true (or rather believed to be true), but pointed out that some things are known more surely than others.

Steuart Campbell
Edinburgh, Scotland

I do not know whether so-called paranormal phenomena are possible occurrences. But I do affirm without hesitation that there is a significant difference between those who say, "I do not know whether so-called paranormal phenomena are possible occurrences," and those who say, "I know that so-called paranormal phenomena are not possible occurrences." Rothman appears to believe that those who emphasize such distinctions are "dogmatic skeptics" in contrast to the "pragmatic skeptics" of the historical scientific community. To most readers, "dogmatic" is a pejorative characterization; I think the author uses it to emphasize his notion that persons who adhere to the more extreme forms of philosophical skepticism are dishonestly appealing to arguments that they themselves do not accept as valid in order to legitimize their wish-fulfilling belief in occult matters. So the first order of business must be to demolish philosophical skepticism (in its most extreme form, Humean empiricism) as an intelligible and viable position.

But Rothman's argument is a peculiar one. The extreme skeptic, if he is educated, is likely to found his position on grounds of logic, proceeding step by step through analytical arguments that appear to him to be unassailable (though, of course, not strictly indubitable). To answer this skeptic by reciting the history of scientific progress is to decline to respond to his central point: that no one has yet succeeded in coming forth

with an assertion the truth of which is beyond all possibility of doubt. . . .

We do in fact behave as if certain assertions are known to be true. We win far more often than we lose when we assign likelihoods to various outcomes on the basis of memory's testimony as to the unbroken repetition of "effect" after the ostensible "cause." But Russell's quoted comment ("It is clear that some things are almost certain . . .") hardly "clarified this dilemma." Russell's assertion is not warranted in logic; I believe it is a careless expression of his frustration, and not a fair representation of his philosophical position. His *History of Western Philosophy* of three years previous states the conclusions of philosopher David Hume, whom I take to be the primary source for the position of extreme skepticism: "The supposition, that the future resembles the past, is not founded on arguments of any kind, but is derived entirely from habit." Russell's comment on Hume: "To refute him has been, ever since he wrote, a favorite pastime among metaphysicians; for my part, I find none of their refutations convincing." Russell hoped to find some independent justification for the principle of induction, a justification "incapable of being inferred from experience or from other logical principles." He is generally held to have been unsuccessful.

What, then, of Rothman? He has not succeeded where Russell failed. I am not persuaded that extreme skepticism is an untenable or unwarranted philosophical position; merely an inconvenient one, in that it creates a conflict between one's deepest philosophical stance and one's actual behavior. We will continue to act as though knowledge is a possible thing. Our civilization will continue to advance by adhering to scientific principles whose apparent previous reliability cannot serve to preclude their future refutation. We will continue to require that extraordinary claims be accepted only accompanied by extraordinary evidence.

But please: let us not justify simple prudence with bad philosophy. The problem with paranormal claims is not that they could not possibly be true, but rather that we have not been presented with sufficient evidence to warrant a belief in them.

Scott R. Dickerson
Los Alamitos, Calif.

More often than not I agree with your journal, but I can't agree with Milton Rothman's "Myths of Science." When baloney by pseudos, fundies, and New Agers gets too deep, I too crave an easy kill. But Rothman's kill is too easy.

He argues what we know now, we will always know—at least vis-à-vis psi, flying saucers, perpetual motion machines, and, the Law of Conservation of Energy. Yet unless he's Jeane Dixon (of legend rather than fact), there's no way he can predict that. For example, he argues we will always know the Law of Conservation of Energy is true since it has been proved down to one part in 10^{15}. Yet there's no way he can know it will remain proved at 10^{16}.

Also, Rothman argues we will always know current theories are true; new theories only add exceptions. But he can't predict that the exceptions won't make the previously impossible possible. Electricity, I hear, was impossible under Newton, but not under Faraday or Hertz. Maybe some future exception will make it possible to get something for nothing, even though it's now impossible.

Furthermore, Rothman argues that we will always know that only four basic forces, and maybe a fifth, exist at room temperature: strong nuclear, electromagnetic, weak nuclear, and gravitational. But he can't predict that some backward glance, some blurring of distinctions, some new way of looking at nature, some technique of creativity won't yield a sixth, seventh, and eighth force. I'm afraid Rothman risks joining the many other experts who called things impossible, and those things later turned out to be all too possible. He may even be joining the physicist Rutherford who called atomic energy "moonshine" 12 years before the Hiroshima bomb.

15% discount on orders of $100 or more

Back Issues of the Skeptical Inquirer

($6.25 for each copy. 15% discount on orders of $100 or more.)

To order, use reply card attached.

WINTER 1990 (vol. 14, no. 2): The new catastrophism, *David Morrison and Clark R. Chapman.* A field guide to critical thinking, *James Lett.* Cold fusion: A case history in 'wishful science'? *Milton A. Rothman.* The airship hysteria of 1896-97, *Robert E. Bartholomew.* Newspaper editors and the creation-evolution controversy, *Michael Zimmerman.* Special report: New evidence of MJ-12 hoax, *Philip J. Klass.* The great Urantia mystery, *Martin Gardner.*

FALL 1989 (vol. 14, no. 1): Myths about science, *Milton A. Rothman.* The relativity of wrong, *Isaac Asimov.* Richard Feynman on fringe science. Luis Alvarez and the explorer's quest, *Richard A. Muller.* The two cultures, *Lewis Jones.* The 'top-secret UFO papers' NSA *Won't* release, *Philip J. Klass.* The metaphysics of Murphy's Law, *Robert M. Price.* The Unicorn at large, Martin Gardner.

SUMMER 1989 (vol. 13, no. 4): The New Age—An Examination: The New Age in perspective, *Paul Kurtz.* A New Age reflection in the magic mirror of science, *Maureen O'Hara.* The New Age: The need for myth in an age of science, *Ted Schultz.* Channeling, *James Alcock.* The psychology of channeling, *Graham Reed,* 'Entities' in the linguistic minefield, *Sarah Grey Thomason.* Crystals, *George M. Lawrence.* Consumer culture and the New Age, *Jay Rosen.* The Shirley MacLaine phenomenon, *Henry Gordon.* Special report: California court jails psychic surgeon, *Richard J. Brenneman.*

SPRING 1989 (vol. 13, no. 3): High school biology teachers and pseudoscientific belief, *Raymond E. Eve and Dana Dunn.* Evidence for Bigfoot? *Michael R. Dennett.* Alleged pore structure in Sasquatch footprints, *Deborah J. Freeland and Walter F. Rowe.* The lore of levitation, *Gordon Stein.* Levitation 'miracles' in India, *B. Premanand.* Science, pseudoscience, and the cloth of Turin, *Joe Nickell.* Rather than just debunking, encourage people to think, *Al Seckel.* MJ-12 papers 'authenticated'? *Philip J. Klass.* A patently false patent myth, *Samuel Sass.*

WINTER 1989 (vol. 13, no. 2): Special report: The 'remembering water' controversy—articles by *Martin Gardner* and *James Randi;* bibliographic guide to the 'dilution controversy.' Pathologies of science, precognition, and modern psychophysics, *Donald D. Jensen.* A reaction-time test of ESP and precognition, *Terence Hines* and *Todd Dennison.* Chinese psychic's pill-bottle demonstration, *Wu Xiaoping.* The Kirlian technique, *Arleen J. Watkins and William S. Bickel.* Certainty and proof in creationist thought, *Joseph E. Lefferriére.*

FALL 1988 (vol. 13, no. 1): Special report: Astrology and the presidency—articles by *Paul Kurtz* and *Murray L. Bob.* Improving Human Performance: What about parapsychology? *Kendrick Frazier.* The China syndrome: Further reflections on the paranormal in China, *Paul Kurtz.* Backward masking, *Tom McIver.* The validity of graphological analysis, *Adrian Furnham.* The intellectual revolt against science, *J. W. Grove.* Reich the rainmaker, *Martin Gardner.*

SUMMER 1988 (vol. 12, no. 4): Testing psi claims in China, *Paul Kurtz, James Alcock, Kendrick Frazier, Barry Karr, Philip J. Klass, and James Randi.* The appeal of the occult: Some thoughts on history, religion, and science, *Philips Stevens, Jr.* Hypnosis and reincarnation, *Jonathan Venn.* Pitfalls of perception, *Anthony G. Wheeler.* Wegener and pseudoscience: Some misconceptions, *Nils Edelman.* An investigation of psychic crime-busting, *C. Eugene Emery, Jr.* High-flying health quackery, *Terence Hines.* The bar-code beast, *M. Keith.* Occam's Razor and the nutshell earth, *Martin Gardner.*

SPRING 1988 (vol. 12, no. 3): Neuropathology and the legacy of spiritual possession, *Barry Beyerstein.* Varieties of alien experience, *Bill Ellis.* Alien-abduction claims and standards of inquiry (excerpts from *Milton Rosenberg's* radio talk-show with guests *Charles L. Gruder, Martin Orne,* and *Budd Hopkins).* The MJ-12 Papers: Part 2, *Philip J. Klass.* Doomsday: The May 2000 prediction, *Jean Meeus.* My visit to the Nevada Clinic, *Stephen Barrett.* Morphic resonance in silicon chips, *F. J. Varela and Juan C. Letelier.* Abigail's anomalous apparition, *Mark W. Durm.* The riddle of the Colorado ghost lights, *Kyle J. Bunch and Michael K. White.* The obligation to disclose fraud, *Martin Gardner.*

WINTER 1987-88 (vol. 12, no. 2): The MJ-12 papers: Part I, *Philip J. Klass.* The aliens among us: Hypnotic regression revisited, *Robert A. Baker.* The brain and consciousness: Implications for psi, *Barry L. Beyerstein.* Past-life hypnotic regression, *Nicholas Spanos.* Fantasizing under hypnosis, *Peter J. Reveen.* The verdict on creationism, *Stephen Jay Gould.* Irving Kristol and the facts of life, *Martin Gardner.*

FALL 1987 (vol. 12, no. 1): The burden of skepticism, *Carl Sagan.* Is there intelligent life on Earth? *Paul Kurtz.* Medical Controversies: Chiropractic, *William Jarvis;* Homeopathy, *Stephen Barrett, M.D.;* Alternative therapies, *Lewis Jones;* Quackery, *Claude Pepper.* Catching Geller in the act, *C. Eugene Emery, Jr.* The third eye, *Martin Gardner.* Special Report: CSICOP's 1987 conference.

SUMMER 1987 (vol. 11, no. 4): Incredible cremations: Investigating combustion deaths, *Joe Nickell and John F. Fischer.* Subliminal deception, *Thomas L. Creed.* Past tongues remembered? *Sarah G. Thomason.* Is the universe improbable? *David A. Shotwell.* Psychics, computers, and psychic computers, *Thomas A. Easton.* Pseudoscience and children's fantasies, *Gwyneth Evans.* Thoughts on science and superstrings, *Martin Gardner.* Special Reports: JAL pilot's UFO report, *Philip J. Klass;* Unmasking psychic Jason Michaels, *Richard Busch.*

SPRING 1987 (vol. 11, no. 3): The elusive open mind: Ten years of negative research in parapsychology, *Susan*

(continued on next page)

Back issues (cont'd.)

Blackmore. Does astrology need to be true? Part 2: The answer is no, *Geoffrey Dean.* Magic, science, and metascience: Some notes on perception, *Dorion Sagan.* Velikovsky's interpretation of the evidence offered by China, *Henrietta W. Lo.* Anomalies of Chip Arp, *Martin Gardner.*

WINTER 1986-87 (vol. 11, no. 2): Case study of West Pittston 'haunted' house, *Paul Kurtz.* Science, creationism and the Supreme Court, *Al Seckel,* with statements by *Francisco J. Ayala, Stephen Jay Gould,* and *Murray Gell-Mann.* The great East Coast UFO of August 1986, *James E. Oberg.* Does astrology need to be true? Part 1, *Geoffrey Dean.* Homing abilities of bees, cats, and people, *James Randi.* The EPR paradox and Rupert Sheldrake, *Martin Gardner.* Followups: On fringe literature, *Henry H. Bauer;* on Martin Gardner and Daniel Home, *John Beloff.*

FALL 1986 (vol. 11, no. 1): The path ahead: Opportunities, challenges, and an expanded view, *Kendrick Frazier.* Exposing the faith-healers, *Robert A. Steiner.* Was Antarctica mapped by the ancients? *David C. Jolly.* Folk remedies and human belief-systems, *Frank Reuter.* Dentistry and pseudoscience, *John E. Dodes.* Atmospheric electricity, ions, and pseudoscience, *Hans Dolezalek.* Noah's ark and ancient astronauts, *Francis B. Harrold and Raymond A. Eve.* The Woodbridge UFO incident, *Ian Ridpath.* How to bust a ghost, *Robert A. Baker.* The unorthodox conjectures of Tommy Gold, *Martin Gardner.*

SUMMER 1986 (vol. 10, no. 4): Occam's razor, *Elie A. Shneour.* Clever Hans redivivus, *Thomas A. Sebeok.* Parapsychology miracles, and repeatability, *Antony Flew.* The Condon UFO study, *Philip J. Klass.* Four decades of fringe literature, *Steven Dutch.* Some remote-viewing recollections, *Elliot H. Weinberg.* Science, mysteries, and the quest for evidence, *Martin Gardner.*

SPRING 1986 (vol. 10, no. 3): The perennial fringe, *Isaac Asimov.* The uses of credulity, *L. Sprague de Camp.* Night walkers and mystery mongers, *Carl Sagan.* CSICOP after ten years, *Paul Kurtz.* Crash of the crashed-saucers claim, *Philip J. Klass.* A study of the Kirlian effect, *Arleen J. Watkins and William S. Bickel.* Ancient tales and space-age myths of creationist evangelism, *Tom McIver.* Creationism's debt to George McCready Price, *Martin Gardner.*

WINTER 1985-86 (vol. 10, no. 2): The moon was full and nothing happened, *I. W. Kelly, James Rotton, and Roger Culver.* Psychic studies: The Soviet dilemma, *Martin Ebon.* The psychopathology of fringe medicine, *Karl Sabbagh.* Computers and rational thought, *Ray Spangenburg and Diane Moser.* Psi researchers' inattention to conjuring, *Martin Gardner.*

FALL 1985 (vol. 10, no. 1): Investigations of firewalking, *Bernard Leikind and William McCarthy.* Firewalking: reality or illusion, *Michael Dennett.* Myth of alpha consciousness, *Barry Beyerstein.* Spirit-rapping unmasked, *Vern Bullough.* The Saguaro incident, *Lee Taylor, Jr., and Michael Dennett.* The great stone face, *Martin Gardner.*

SUMMER 1985 (vol. 9, no. 4): Guardian astrology study, *G. A. Dean, I. W. Kelly, J. Rotton, and D. H. Saklofske.* Astrology and the commodity market, *James Rotton.* The hundredth monkey phenomenon, *Ron Amundson.* Responsibilities of the media, *Paul Kurtz.* 'Lucy' out of context, *Leon H. Albert.* The debunking club, *Martin Gardner.*

SPRING 1985 (vol. 9, no. 3): Columbus poltergeist: I, *James Randi.* Moon and murder in Cleveland, *N. Sanduleak.* Image of Guadalupe, *Joe Nickell and John Fischer.* Radar UFOs, *Philip J. Klass.* Phrenology, *Robert W. McCoy.* Deception by patients, *Loren Pankratz.* Communication in nature, *Aydin Orstan.* Relevance of belief systems, *Martin Gardner.*

WINTER 1984-85 (vol. 9, no. 2): The muddled 'Mind Race,' *Ray Hyman.* Searches for the Loch Ness monster, *Rikki Razdan and Alan Kielar.* Final interview with Milbourne Christopher, *Michael Dennett.* Retest of astrologer John McCall, *Philip Ianna and Charles Tolbert.* 'Mind Race,' *Martin Gardner.*

FALL 1984 (vol. 9, no. 1): Quantum theory and the paranormal, *Steven N. Shore.* What is pseudoscience? *Mario Bunge.* The new philosophy of science and the 'paranormal,' *Stephen Toulmin.* An eye-opening double encounter, *Bruce Martin.* Similarities between identical twins and between unrelated people, *W. Joseph Wyatt et al.* Effectiveness of a reading program on paranormal belief, *Paul J. Woods,* Pseudoscientific beliefs of 6th-graders, *A. S. and S. J. Adelman.* Koestler money down the psi-drain, *Martin Gardner.*

SUMMER 1984 (vol. 8, no. 4): Parapsychology's past eight years, *James E. Alcock.* The evidence for ESP, *C. E. M. Hansel.* $110,000 dowsing challenge, *James Randi.* Sir Oliver Lodge and the spiritualists, *Steven Hoffmaster.* Misperception, folk belief, and the occult, *John W. Connor.* Psychology and UFOs, *Armando Simón.* Freud and Fliess, *Martin Gardner.*

SPRING 1984 (vol. 8, no. 3): Belief in the paranormal worldwide: Mexico, *Mario Mendez-Acosta;* Netherlands, *Piet Hein Hoebens;* U.K., *Michael Hutchinson;* Australia, *Dick Smith;* Canada, *Henry Gordon;* France, *Michel Rouzé.* Debunking, neutrality, and skepticism in science, *Paul Kurtz.* University course reduces paranormal belief, *Thomas Gray.* The Gribbin effect, *Wolf Roder.* Proving negatives, *Tony Pasquarello.* MacLaine, McTaggart, and McPherson, *Martin Gardner.*

WINTER 1983-84 (vol. 8, no. 2): Sense and nonsense in parapsychology, *Piet Hein Hoebens.* Magicians, scientists, and psychics, *William H. Ganoe and Jack Kirwan.* New dowsing experiment, *Michael Martin.* The effect of TM on weather, *Franklin D. Trumpy.* The haunting of the Ivan Vassilli, *Robert Sheaffer.* Venus and Velikovsky, *Robert Forrest.* Magicians in the psi lab, *Martin Gardner.*

FALL 1983 (vol. 8, no. 1): Creationist pseudoscience, *Robert Schadewald.* Project Alpha: Part 2, *James Randi.* Forecasting radio quality by the planets, *Geoffrey Dean.* Reduction in paranormal belief in college course, *Jerome J. Tobacyk.* Humanistic astrology, *I. W. Kelly and R. W. Krutzen.*

SUMMER 1983 (vol. 7, no. 4): Project Alpha: Part 1, *James Randi.* Goodman's 'American Genesis,' *Kenneth L. Feder.* Battling on the airwaves, *David B. Slavsky.* Rhode Island UFO film, *C. Eugene Emery, Jr.* Landmark PK hoax, *Martin Gardner.*

SPRING 1983 (vol. 7, no. 3): Iridology, *Russell S. Worrall.* The Nazca drawings revisited, *Joe Nickell.* People's Almanac predictions, *F. K. Donnelly.* Test of numerology, *Joseph G. Dlhopolsky.* Pseudoscience in the name of the university, *Roger J. Lederer and Barry Singer.*

WINTER 1982-83 (vol. 7, no. 2): Palmistry, *Michael Alan Park.* The great SRI die mystery, *Martin Gardner.* The 'monster' tree-trunk of Loch Ness, *Steuart*

Campbell. UFOs and the not-so-friendly skies, *Philip J. Klass.* In defense of skepticism, *Arthur S. Reber.*

FALL 1982 (vol. 7, no. 1): The prophecies of Nostradamus, *Charles J. Cazeau.* Prophet of all seasons, *James Randi.* Revival of Nostradamitis, *Piet Hoebens.* Unsolved mysteries andextraordinary phenomena, *Samual T. Gill.* Clearing the air about psi, *James Randi. A skotography* scam, *James Randi.*

SUMMER 1982 (vol. 6, no. 4): Remote-viewing, *D. F. Marks.* Radio disturbances and planetary positions, *J. Meeus.* Divining in Australia, *D. Smith.* "Great Lakes Triangle," *Paul Cena.* Skepticism, closed-mindedness, and science fiction, *D. Beyerstein.* Followup on ESP logic, *C. L. Hardin and R. Morris* and *S. Gendin.*

SPRING 1982 (vol. 6, no. 3): The Shroud of Turin, *Marvin M. Mueller.* Shroud image, *Walter McCrone.* Science, the public, and the Shroud, *Steven D. Schafersman.* Zodiac and personality, *Michel Gauquelin.* Followup on quantum PK, *C. E. M. Hansel.*

WINTER 1981-82 (vol. 6, no. 2): On coincidences, *Ruma Falk.* Gerard Croiset: Part 2, *Piet Hoebens.* Scientific creationism, *Robert Schadewald.* Follow-up on 'Mars effect,' *Dennis Rawlins,* responses by *CSICOP Council* and *George Abell and Paul Kurtz.*

FALL 1981 (vol. 6, no. 1): Gerard Croiset: Part 1, *Piet Hein Hoebens.* Test of perceived horoscope accuracy, *Douglas P. Lackey.* Planetary positions and radio propagation, *Philip A. Ianna and Chaim J. Margolin.* Bermuda Triangle, 1981, *Michael R. Dennett.* Observation of a psychic, *Vonda N. McIntyre.*

SUMMER 1981 (vol. 5, no. 4): Investigation of 'psychics,' *James Randi.* ESP: A conceptual analysis, *Sidney Gendin.* The extroversion-introversion astrological effect, *Ivan W. Kelly and Don H. Saklofske.* Art, science, and paranormalism, *David Habercom.* Profitable nightmare, *Jeff Wells.* A Maltese cross in the Aegean? *Robert W. Loftin.*

SPRING 1981 (vol. 5, no. 3): Hypnosis and UFO abductions, *Philip J. Klass.* Hypnosis not a truth serum, *Ernest R. Hilgard.* H. Schmidt's PK experiments, *C. E. M. Hansel.* Further comments on Schmidt's experiments, *Ray Hyman.* Atlantean road, *James Randi.* Deciphering ancient America, *Marshall McKusick.* A sense of the ridiculous, *John A. Lord.*

WINTER 1980-81 (vol. 5, no. 2): Fooling some people all the time, *Barry Singer and Victor Benassi.* Recent perpetual motion developments, *Robert Schadewald.* National Enquirer astrology study, *Gary Mechler, Cyndi McDaniel, and Steven Mulloy.* Science and the mountain peak, *Isaac Asimov.*

FALL 1980 (vol. 5, no. 1): The Velikovsky affair — articles *by James Oberg, Henry J. Bauer, Kendrick Frazier.* Academia and the occult, *J. Richard Greenwell.* Belief in ESP among psychologists, *V. R. Padgett, V. A. Benassi, and B. F. Singer.* Bigfoot on the loose, *Paul Kurtz.* Parental expectations of miracles, *Robert A. Steiner.* Downfall of a would-be psychic, *D. H. McBurney and J. K. Greenberg.* Parapsychology research, *Jeffrey Mishlove.*

SUMMER 1980 (vol. 4, no. 4): Superstitions, *W. S. Bainbridge and Rodney Stark.* Psychic archaeology, *Kenneth L. Feder.* Voice stress analysis, *Philip J. Klass.* Follow-up on the 'Mars effect,' Evolution vs. creationism, and the Cottrell tests.

SPRING 1980 (vol. 4, no. 3): Belief in ESP, *Scot Morris.* UFO hoax, *David I. Simpson.* Don Juan vs. Piltdown man, *Richard de Mille.* Tiptoeing beyond Darwin, *J. Richard Greenwell.* Conjurors and the psi scene, *James Randi.* Follow-up on the Cottrell tests.

WINTER 1979-80 (vol. 4, no. 2): The 'Mars effect' — articles *by Paul Kurtz, Marvin Zelen, and George Abell; Dennis Rawlins; Michel and Françoise Gauquelin.* How I was debunked, *Piet Hein Hoebens.* The metal bending of Professor Taylor, *Martin Gardner.* Science, intuition, and ESP, *Gary Bauslaugh.*

FALL 1979 (vol. 4, no. 1): A test of dowsing, *James Randi.* Science and evolution, *Laurie R. Godfrey.* Television pseudodocumentaries, *William Sims Bainbridge.* New disciples of the paranormal, *Paul Kurtz.* UFO or UAA, *Anthony Standen.* The lost panda, *Hans van Kampen.* Edgar Cayce, *James Randi.*

SUMMER 1979 (vol. 3, no. 4): The moon and the birthrate, *George Abell and Bennett Greenspan.* Biorhythms, *Terence Hines.* 'Cold reading,' *James Randi.* Teacher, student, and the paranormal, *Elmer Kral.* Encounter with a sorcerer, *John Sack.*

SPRING 1979 (vol. 3, no. 3): Near-death experiences, *James E. Alcock.* Television tests of Musuaki Kiyota, *Christopher Scott and Michael Hutchinson.* The conversion of J. Allen Hynek, *Philip J. Klass.* Asimov's corollary, *Isaac Asimov.*

WINTER 1978-79 (vol. 3, no. 2): Is parapsychology a science? *Paul Kurtz.* Chariots of the gullible, *W. S. Bainbridge.* The Tunguska event, *James Oberg.* Space travel in Bronze Age China, *David N. Keightley.*

FALL 1978 (vol. 3, no. 1): An empirical test of astrology, *R. W. Bastedo.* Astronauts and UFOs, *James Oberg.* Sleight of tongue, *Ronald A. Schwartz.* The Sirius "mystery," *Ian Ridpath.*

SPRING/SUMMER 1978 (vol. 2, no. 2): Tests of three psychics, *James Randi.* Biorhythms, *W. S. Bainbridge.* Plant perception, *John M. Kmetz.* Anthropology beyond the fringe, *John Cole.* NASA and UFOs, *Philip J. Klass.* A second Einstein ESP letter, *Martin Gardner.*

FALL/WINTER 1977 (vol. 2, no. 1): Von Däniken, *Ronald D. Story,* The Bermuda Triangle, *Larry Kusche.* Pseudoscience at Science Digest, *James E. Oberg and Robert Sheaffer.* Einstein and ESP, *Martin Gardner.* N-rays and UFOs, *Philip J. Klass.* Secrets of the psychics, *Dennis Rawlins.*

SPRING/SUMMER 1977 (vol. 1, no. 2): Uri Geller, *David Marks and Richard Kammann.* Cold reading, *Ray Hyman.* Transcendental Meditation, *Eric Woodrum.* A statistical test of astrology, *John D. McGervey.* Cattle mutilations, *James R. Stewart.*

FALL/WINTER 1976 (vol. 1, no. 1): Dianetics, *Roy Wallis.* Psychics and clairvoyance, *Gary Alan Fine.* "Objections to Astrology," *Ron Westrum.* Astronomers and astrophysicists as astrology critics, *Paul Kurtz and Lee Nisbet.* Biorhythms and sports, *A. James Fix.* Von Däniken's chariots, *John T. Omohundro.*

Rothman's problem is that his argument is too extreme. I admit the Law of Conservation of Energy was created with a lot of mental blood and treasure. While for the reasons stated above it shouldn't be impossible to overturn, it should take a lot of mental blood and treasure to do it. As Randi says: extraordinary claims demand extraordinary proof. Thus the extraordinary is going to have to occur under strict controls. Under those conditions, neither the fuzzy photographs of Nessie hunters nor the now-I-see-it-now-you-don't evidence of saucer witnesses make it.

Richard A. Dengrove
Alexandria, Va.

Milton Rothman responds:

There is in the foregoing letters some confusion concerning basics. So let me begin at the beginning. I am not a philosopher. I am an experimental physicist and a philosophical realist. Therefore I start with the premise that a real world exists outside our minds and that it is the purpose of science to determine what we can about the nature of that real world. (See, also, the article by Mario Bunge in the SKEPTICAL INQUIRER, *Fall 1984.) As a realist, I am opposed to the idealist who believes that "mind" is the fundamental thing and that what we see is just made up within the mind. If I did not believe in reality there would be no point in doing experiments. Knowledge is the total of what we learn about reality from our observations and from the theories that organize those observations.*

Steuart Campbell argues that all knowledge is imperfect. Yet he ignores my counterexamples: one apple plus one apple equals two apples, and the earth is not *shaped like a Euclidean plane surface. This is perfect knowledge. You may consider it trivial knowledge, but the statement that "all knowledge is imperfect" does not make exceptions for either trivial or mathematical knowledge. The fact that in our part of the universe all atoms consist of positively charged electrons is also perfect knowledge, as is the fact that electrons exist. The existence of electrons does not depend on opinion. It depends on the fact that our instruments detect objects having a certain mass, electric charge, spin, and other properties, which we define to be electrons. Furthermore, people all over the world can build instruments to detect electrons having the same mass, electric charge, and spin. The numbers we get for the mass, electric charge, etc., have some small uncertainty connected with them, but there is no uncertainty to the fact that electrons exist. You may deny that this is so, but then it is up to you to build transistors and other electronic devices based on some other theory. Pragmatism is more than a convenience: in science it is a necessity.*

The statement that "scientific knowledge is the consensus of the scientific community" is one of those slogans that sounds nice but that requires careful analysis to ensure that it has a sensible meaning. There was a time when "the earth is flat and is at the center of the solar system" was the consensus of the scientific community, such as it was. However, it was not, and never was, scientific knowledge. It was merely a consensus. Opinion must not be confused with knowledge.

Knowledge (in the physical sciences) is correct information about the real world. This information must be verifiable by appropriate observations. And it is not knowledge until it is *verified. Not all knowledge is perfect, but some knowledge is perfect enough for all practical purposes.*

It was never my intention to state that all knowledge is unchanging. Indeed, what I said was that "the evolution of theories is from the less correct to the more correct . . ." (SI, Fall 1989, p. 31). Certain general physical principles (such as conservation of energy) relate to fundamental symmetries of time and space, and once our understanding of these symmetries has been verified there is no reason to believe that it is going to change. To put it another way, the symmetries and our knowledge of them will not change unless there is a reason for them

to change.

Scott Dickerson is correct. It is not possible to prove through logic that realism is more valid than idealism. I didn't claim to be a philosopher. And most philosophers of the past have not been physicists. But let me say this: I choose realism over idealism because of predictability. Realistic theories can make accurate predictions about the real world. Idealistic theories (theories that assume "mind" is the primary thing) cannot. Whenever realistic predictions cannot be made with accuracy we can explain why this is so. (See my book A Physicist's Guide to Skepticism, *or any book on Chaos.) Nevertheless, some predictions based on realism can be made with perfect accuracy (e.g., I am going to die within the next 50 years; wait 50 years and see if I'm right.) By contrast, no predictions relating to physical phenomena based on idealistic theories can be made with any kind of confidence. For this pragmatic reason I choose realism over idealism.*

Richard Dengrove claims I said some things I didn't say. I didn't claim conservation of energy would always be true just because of its accuracy. I said that today's known laws were true in the past because we can measure the wavelength of the light coming to us from the most distant stars. And if the laws were true for the past five billion years, why should they suddenly change now? As for electricity being impossible under Newton, I never heard of any such thing. If anybody ever said it, it was just an opinion. You should not believe anybody's opinion if it is not backed up by facts. The hardest thing in science is learning to tell the difference between knowledge and opinion.

Just recently some confirmatory items have appeared in the news. The weak "fifth force" that some physicists believed they had found has now been discredited. The experimental results can be explained by irregularities in the composition of the earth. And preliminary results from the new particle accelerators confirm the "standard model of matter." The three families of particles that we have discovered during the past century remain intact, and there is no evidence of others.

The relativity of wrong

Isaac Asimov's essay "The Relativity of Wrong" (*SI*, Fall 1989) was nicely done. His point, that science progresses not by replacing wrong theories with right ones, but instead by moving through successive refinement from less complete to more complete theories, really deserves broader recognition. However, his conclusion, that we live in a time when the universe is essentially understood, is undermined, I believe, by his failure to make a small but important distinction.

A key factor in scientific progress is improvement in the tools of observation. Newton's laws were developed to explain phenomena accessible to observation in his day, including (*a*) gravitational interaction of massive bodies, but not including (*b*) relative motions near the speed of light or (*c*) molecular or atomic phenomena. Newton's laws give accurate predictions in domain (*a*), but not in domains (*b*) and (*c*). The theory of relativity does well in domains (*a*) and (*b*), but not (*c*). Now the relativistic domain (*b*) is an extension of Newton's domain (*a*). Phenomenal domains are extended or refined by advances in the nature and accuracy of our observational capabilities. Whether theories are extended or refined in the same sense is debatable.

I think that Asimov should have argued that science progresses by adapting theory to successively extended/refined phenomenal domains. This is different from claiming that the theories themselves are successive refinements of previous theories, as Asimov appears to claim. It is also different from asserting that old theories are merely incomplete versions of new ones. Rather, old theories work well only in incomplete portions of new extended phenomenal domains to which we now have access. The relativistic

postulate that the speed of light is constant regardless of the relative motion of the observer does not in any sense seem to be a refinement or completion of the Newtonian world-view. The Newtonian theory really is wrong in this regard, but its wrongness doesn't make much difference in the limited phenomenal domain of everyday experience. As Asimov would say, it is nearly right in this domain. Nevertheless, it is very wrong in more extended domains.

The sun-centered Copernican model is not a mere refinement of the earth-centered Ptolemaic model. And in spite of the fact that a sphere looks flat locally, a spherical-earth theory is not a mere completion of a flat-earth theory. Each of these new theories has qualitative aspects that are entirely absent from the old ones: The notion, for example, that moving in a straight line along the surface of the earth will eventually return you to your starting point is entirely novel from a flat-earth perspective. Moreover, from the viewpoint of the new theories, the old theories do not really give an "essential understanding" of the universe. There are essential qualitative aspects of the universe missing and not even hinted at in the old theories.

So what reason is there to believe that our current theories give us essential understanding? They may do so in the phenomenal domains for which they were created, but if our observational capabilities are extended in unforeseen ways, there is no telling what "paradigm shifts" may occur. Newton's laws will always get us to the moon, but "the moon" and "us" may be entirely different from what we now imagine.

Gordon B. Hazen
Wilmette, Ill.

I protest several items in the otherwise perceptive article by Isaac Asimov. He puts his idea of what a teacher is on a hook, then throws darts at his invented caricature. He pits a student of unknown grade level with Asimov's long years of experience and knowledge against an imbecilic instructor. We educators apparently know very little more than our students, even to the point where we would not recognize the special student who spells "sugar" as "sucrose" or "$C_{12}H_{22}O_{11}$."

Why not have a spelling test like "How many ways are there to spell sugar? Justify each." On occasion, sure. It sounds like fun, but as a consistent means of evaluation, no. State and local curriculum objectives must be met; that question is hardly on any achievement test. Not only must we instruct under constraints—teaching is *so* different from writing articles—we must also *manage* a large group of youngsters.

Would Asimov like tripling the time grading papers, day after day, week after week, not just reading, but evaluating *how much wronger* one answer is than another? Two points wronger, 10 percent wronger, five times wronger? Justify each. To the student. To the parent. To the school board. To another author. Besides, why should a team that loses a ballgame by nine runs get "marked" just as wrong as a team that loses by three runs? Welcome to the real world!

Lou Blazquez
Flagstaff Junior High
Flagstaff, Ariz.

The following true story is a particularly egregious example of the evils of using the notion of absolute wrong in the classroom, as was pointed out by Isaac Asimov.

A first-grade class was discussing some elementary astronomy, and the teacher posed the question: "What is the nearest star?" The first child to speak suggested "Alpha Centauri," of which it seems the teacher had never heard. On being told that he was wrong, the child protested. He was then subjected to a lengthy argument demonstrating that the answer should be "the sun" and was eventually brought to tears.

Perhaps the most disturbing thing about this story is that it was told

to me by the teacher herself, with considerable self-justification and pride in the correctness of her view.

John G. Fletcher
Pleasanton, Calif.

The English Literature major is right and Asimov is wrong. We do not "live in a century when the universe is essentially understood." In fact we live in such a century less than in any previous century, precisely because we have learned so much about the universe.

As the Lit major points out and Asimov agrees, each century has felt it essentially understood the universe, and each succeeding century has made new discoveries and denied the claim of the previous century. So, to be true, Asimov's "essentially understood" can only mean that, whereas the writings of an Asimov of 1880 would have no scientific value today, an Asimov of 2080 would deem those of today to need no more than a brushup.

It isn't hard to show the reverse is the case. I took a 1980 book of Asimov's and showed that even by 1985 it needed revision. Today, it would need even more. The essential understanding of 1980 was not the essential understanding of even slightly later years.

Put another way, if the universe is essentially understood, there should be a clear decline in the amount of new knowledge. (We essentially understand it, so little is left to learn.) That, of course, has not happened, and the doubling of human knowledge occurs at an ever faster pace.

This accelerating increase in human knowledge means that we are getting further from an essential understanding of the universe even as we approach it faster. We once knew one thing and deemed there was only one more to learn. Now we know hundreds and know of thousands we have yet to learn. As Socrates implied, our great increase in knowledge has also taught us there is a great deal more to learn than we thought. Knowing you know "nothing" is indeed a mark of wisdom.

David Carl Argall
La Puente, Calif.

Isaac Asimov says it is his business to write controversial essays and says it's only fair to let others disagree with him. Rather than respond, he may write another controversial article at another time.—ED.

Murphy's Law

What Robert M. Price fails to note in his article on Murphy's Law (*SI*, Fall 1989) is the relativity of what he labels "negative synchronicity." A case in point—on the same day that Price's articles came to my attention I received a *second* copy of *The New Official Rules*, by Paul Dickson, a book that is intimately involved with Murphy's Law. I'd received the first several days earlier as a review copy, and the second was sent me at Dickson's request because of several contributions I'd made to the volume; but the point is that what may seem like negative synchronicity to the publisher (Addison-Wesley) certainly seems a positive one to me.

A more important shortcoming of Price's article is his apparent ignorance of Dickson's labor in the realm of Murphology, which puts Arthur Bloch's work to shame. Price's main reference is to Bloch's *Murphy's Law* (volume one), which contains perhaps 300 laws in its 92 pages, and Price gives no indication that there have been several similar volumes in the series. But compare: Dickson's *The Official Rules* (1978) contains 1,500 Murphy-type laws (including an in-depth section on Murphy himself); his *The Official Explanations* (1980) adds another 1,500 (with more Murphy history); and his latest, *The New Official Rules*, adds 1,500 more.

Dickson is also the founder and Director-for-Life of the Murphy Center for the Codification of Human and Organizational Laws (Box 80, Garrett

Park, MD 20896), and as such he's open to any and all new laws and insights thereinto that readers may wish to send him. As a proud Senior Fellow of the Murphy Center I'm happy to give it this plug. As a collector of synchronicities and a member of the Discordian Movement, I suggest that Price be more careful what he has to say about Jüng and Eris!

Neal Wilgus
Albuquerque, N.M.

In reading the delicious article by Price about Murphy's Law, I remembered an ancient joke that illustrates—in my opinion, marvelously—the skepticism that should always be applied to miracles.

The joke goes as following: Sara, living in a Polish ghetto before the war, drops a buttered slice of bread, and it lands on its nonbuttered side. Now, Murphy's Law was in that time formulated differently from Jenning's Corollary to the Law of Selective Gravity. In fact, the Murphy's Law concerning the problem of falling bread was in that time that, contrariwise to the normally expected 50/50 distribution of the side of the slice landing on the ground, you will have a 100-percent chance of having it falling on the buttered side. There was then no proportional relation to the price of the carpet as there were no carpets on the floor, but just soil. The dire consequence of the slice falling on its buttered side was to make it unfit for human consumption, in that time a much more serious problem than prices of carpets.

So, as Sara is astonished, she runs to the rabbi and asks excitedly if this rare phenomenon of a slice falling on the nonbuttered side could not perhaps be a real miracle. The rabbi is a very prudent man and says that he will think about it, because one should not believe too rapidly in miracles. He asks her to come back next week.

She does, but on her hopeful question: "Well Rabbi, was it a miracle?" He replies: "No, Sara you buttered your slice on the wrong side."

I think that mathematicians will especially appreciate this.

Frans Kok
Brussels, Belgium

On reading Robert Price's article on Murphy's Law, my first thought was to wonder why this subject had not been raised before. The applicability of Murphy's Law is as widely believed as any pseudoscience and with at least as much justification.

My second thought was that, long before I became an active skeptic, I had recognized the existence of the "shyness effect." Shortly after first encountering Murphy's Law—or Sod's Law, as I knew it then—I promulgated Napier's Principle of Scientific Research. It read, "Any experiment carried out to verify the truth of Sod's Law will, by Sod's Law, generate inconclusive results."

Could it be that all psychic phenomena are merely special instances of Murphy's Law?

Tom Napier
North Wales, Pa.

In his discussion of Murphy's Law, Price has rather badly missed the point. I first heard of Murphy's Law ("Whatever can go wrong will go wrong") about 30 years ago, and at that time it was obviously a joke. There was of course always a degree of truth to it as a statistical law, in reality a corollary of the Law of Large Numbers. But just as the completely valid and thoroughly accepted Law of Large Numbers cannot deterministically predict when an event will happen, neither can Murphy's Law. Nevertheless if the probability of something going wrong is greater than zero, then if we wait long enough, perhaps a few million years, it is bound to happen.

For many people Murphy's Law remains a joke. Yet it has by now almost acquired the status of a real law. I am not sure exactly when it crossed the threshold from a joke to an important

principle, but the change was certainly caused by the widespread use of computers, each capable of performing millions of operations per second. We no longer need wait a million years for something to go wrong. For those of us in the computer field, Murphy's Law is a serious fact of everyday life that we dare not ignore.

Neil W. Rickert
Dept. of Computer Science
Northern Illinois University
DeKalb, Ill.

Robert M. Price replies:

May I propose "Price's Law"? "No matter how illuminating an article you write, putting the ink onto paper is like spilling blood in the water: you are only attracting sharks (critics)." Just kidding! As these letters show, no matter what one says, no one can cover all aspects of a subject, and any writer is lucky when others—as these letter writers did—come to help shoulder the burden. Neal Wilgus is right: my ignorance of other works on Murphy's Law is not only apparent but real. Thanks to his wide knowledge of arcana (evident in many helpful works like his fascinating Illuminoids*) and his bibliographical tips, the serious Murphologist can pursue his/her studies in greater depth.*

Frans Kok's joke is wonderful and is in fact a prime example of another variety of psychology masquerading as philosophy, the "Self-Sealing Premise." The tendency to concoct a harmonizing rationalization to patch the holes in a theory or belief no matter how much tortuous twisting of data and reasoning is necessary. This is what Albert Schweitzer called "the crooked and fragile thinking of Christian apologetics."

Has Tom Napier provided us with a Murphite version of the Liar Paradox? If Sod's/Murphy's Law itself makes it annoyingly impossible to verify Sod's/Murphy's Law, couldn't that very infallible failure rate count as evidence that Sod's/Murphy's Law is true*? What else could account for it? Of course this sort of thinking is characteristic of the Self-Sealing Premise, of which claims for psychic phenomena do indeed usually make use.*

I do not think I have missed the point of Murphy's Law as Neil Rickert suggests. I believe I am agreeing with him that the typical "going wrong" of things is really only to be expected and needs no "explanation," except as one more strained rationalization to preserve the Self-Sealing Premise cherished by order-loving humans that the world ordinarily "works" to suit their desires and that when it doesn't it must be the result of Murphy's gremlins, much like the Azande "witchcraft" theodicy studied by Evans-Pritchard. It is the silly element of a "system of entropy," an "order of disorder," that Murphy humorously provides. The Law of Large Numbers may describe what is really going on; but Murphy's Law, whether seriously intended or not, is more like a superstition with its implication of a willfully directed conspiracy against human convenience.

The new inquisition

I read with great interest Robert Sheaffer's review of Robert Anton Wilson's *The New Inquisition* (*SI*, Fall 1989). In it, he calls Wilson a terrorist, but that is a matter between Sheaffer and Wilson. What concerns me is factual accuracy, and in this regard Sheaffer falls down rather badly. Indeed, his assessment of Wilson's work is so completely different from my own that it prompted me to go back and read the book again; and I have been unfortunately forced into concluding that Sheaffer either (*a*) has not read the book very carefully; or (*b*) has read it but hasn't understood it; or (*c*) has read it and understood it, but is deliberately misrepresenting what it says; or (*d*) any combination of (*a*), (*b*), and (*c*) above.

The review is full of errors, omissions, and misunderstandings. For example, Sheaffer states on page 79, "Apparently Wilson operates on the principle that all claims should be treated as equal"; and on page 80, "Wilson thinks that . . . [we should] welcome with open arms any and all yarns about miraculous events." These statements are flatly contradicted in Wilson's own words, not once but in many places. For example,

"A wiser . . . student might become merely a liberal Humean—one who holds that no proof is absolute but some ideas are more plausible than others" (*TNI*, p. 37). Or, "I am not asking you to believe these yarns at all . . . I am merely asking you to observe in yourself the strength and immediacy of the impulse to deny at once" (p. 51). Or, ". . . Many of the claims of the New Irrationalism are . . . absurd" (p. 64).

There are many other errors, for example:

Sheaffer: ". . . What Wilson and others actually seek for today's heretics is exemption from critical examination of their claims" (p. 82). Wilson: "Any system that claims certainty must answer all challenges" (p. 8).

Sheaffer: "This superficial critique . . . will delight those whose minds, like Wilson's, are inflexibly made up" (p. 82). Wilson: "I am not advocating any specific old or new paradigm; I am merely advocating agnosticism and tolerance for dissent" (p. 21). Again, ". . . Nobody's fundamentalism alarms me as much as my own, whenever I spot a bit of it skulking around in the back rooms of my skull" (p. 69). And, "We might all become . . . much less stupid, if we tried, even occasionally, to look dispassionately and without prejudice at those events which do not seem to fit our own favorite reality-tunnel . . ." (p. 91).

Sheaffer: "[Wilson] might have . . . realized that authors published in *SI* do not automatically agree with each other like robots in lockstep, although the existence of diversity among rationalists being so far outside Wilson's 'reality tunnel,' he would probably have failed to recognize it . . ." (p. 81). Wilson: "Dr. Hyman [whom Wilson cites as one of Velikovsky's defenders] is a member of CSICOP. . . . I mention this fact lest any careless reader think I wish to denounce that whole society in a lump" (p. 69).

Sheaffer, it seems to me, is a very careless reader indeed.

Michael G. Price
Vancouver, B.C.
Canada

There I was, sitting with head in hand, crushed with despair at the avalanche of books, articles, movies, television shows, astrology columns, crystal healers, channelers, and others of a similar ilk touting the paranormal.

Then, lo and behold, I read Robert Sheaffer's book review of *The New Inquisition* in your Fall 1989 issue and learned that CSICOP, which I had always thought of as trying to bail out the ocean with a thimble, is actually the powerful inquisitional arm of the "Citadel of Science" dedicated to suppressing all beliefs not acceptable to its masters (but unable to educate millions of American children on the basics of science or the scientific method). If the real Inquisition had the same success rate as CSICOP has had, the Enlightenment would have arrived several centuries earlier.

For people who are being suppressed, the various holistic and crystal healers, UFO-abductee book-writers, channelers, psychics, creationists, and other purveyors of the paranormal, psychobabble, and similar silliness, seem to be doing pretty well. When a channeler like J. Z. Knight can make upwards of $200,000 a night, we obviously need a better inquisitor.

Eugene Weisfeld
Taos, N.M.

Sheaffer repeats a long-standing, though oft-corrected, canard about Velikovsky that I once more wish to put to rest.

According to Sheaffer, scholars reacted so vehemently to *Worlds in Collision* in 1950 because it "was going to be published as a *textbook*" (p. 82). This is ridiculous on its face.

Sheaffer is unwittingly repeating the myth started by Isaac Asimov in the October 1974 *Analog* that Damon Knight corrected in February 1975. James Oberg repeated the error in the Fall 1980 *SI* and Henry Bauer duly corrected it in Spring 1981. Regrettably, Oberg's article was reprinted in *Paranormal Borderlands of Science* (1981) with

no corrections. In *Beyond Velikovsky* (1984), Bauer also corrected Asimov's account. This textbook allegation was also refuted by Ralph Juergens in *Kronos*, 6(4), 1981, as well as by Velikovsky in *Stargazers and Gravediggers* (1983).

The persistence of this false allegation in light of all the corrections is frustrating. Velikovsky dealt exclusively with Macmillan's Tradebook Department. What did upset some academics was a listing of Velikovsky's book under the heading of "Science" in the back of a College Department catalog with other new books separate from the textbooks (see *Kronos*, 9[2], 1984, pp. 46-53). However, the furor over Velikovsky's book started with an article in the January 1950 *Harper's*, before publication and before the "Science" listing appeared.

Henry Bauer gives some insights into the reaction to Velikovsky in his December 1988 *La Recherche* article, reviewed in the Fall 1989 *SI*. For myself, the reaction can be explained by scholars over-reacting to the popularity of the book from a reputable publisher whose palpable nonsense was patent, though not readily *explained* to the public (see *SI*, Summer 1986, pp. 380-381). Furthermore, Velikovsky exacerbated conditions though his arrogant and contentious contacts in 1946 and 1947 with the dean of American astronomers, Harlow Shapley, a key figure in 1950. Particularly damning is the letter that accompanied the copy of *Cosmos without Gravitation* that Velikovsky sent to Shapley at Harvard on March 31, 1947. The reader will look in vain for this episode in *Stargazers and Gravediggers*, because Velikovsky suppressed events in his memoir that were inconsistent with the public image he cultivated.

Finding a simple explanation for a complex of behaviors, e.g., the many intense reactions to *Worlds in Collision*, is worthwhile. However, a totally wrong explanation, such as Sheaffer's, serves no purpose except to muddy the water and damage the critic's credibility.

C. Leroy Ellenberger
St. Louis, Mo.

Robert Sheaffer responds:

Wilson describes himself as a "guerrilla ontologist," signifying his intention to attack language and knowledge in the way terrorists attack their targets: to jump out from the shadows for an unprovoked attack, then slink back and hide behind a hearty belly-laugh. I stand by my statement that Wilson's knowledge of CSICOP is negligible, his opposition to it visceral and grounded in prejudice, not reason. Obviously Michael Price's sharply critical letter—and a quick look at the back issues of SI *reveals many others—could never be published in the journal imagined by Wilson.*

When an author is inconsistent with his own professed principles, one can find quotations that seem to contradict any interpretation, and such is the case with the Wilson quotes Price musters. While paying prodigious lip-service to the ideals of openness, diversity, and the questioning of cherished beliefs, Wilson displays zero tolerance for critical examination of the irrational beliefs so dear to him. Not only is Wilson unwilling to grant any validity to the arguments of his opponents, but he attributes to them the basest of motives, indicting scientists and skeptics as agents of a sinister inquisitorial conspiracy to silence any who might question its inhumane murder-for-profit scheme. As Eugene Weisfeld's letter notes, if this is *an inquisition, it is a singularly inept one, given that the number of books sold each year opposing the viewpoint of "The Citadel" positively dwarfs those supporting it. Such is the problem faced by all conspiracy theorists in an open society: trying to explain why that powerful, sinister conspiracy has not yet succeeded in silencing* them.

My apologies to C. Leroy Ellenberger and to SI *readers if I have erred in stating the exact nature of the 1950 flap over Velikovsky's book. However, many groups—and practically all individuals—boycott those providers of goods and services that* for whatever reason *they do not like. It may be because these firms do business in South Africa, or the Soviet Union, or publish irresponsible trash, or are cruel to whales, ferrets, rabbits, foxes, rain forests, nuclear opponents, nuclear proponents, or spill oil, or don't spill oil, and make a lot*

of money selling it. Anyone is free to refuse to do business with any firm, for any reason whatsoever, and this is an essential element of a free society. Wilson, who goes on incessantly about his love of freedom, reaches the height of hypocrisy when he brands as "Inquisitors" those who peacefully exercise their *freedoms in ways he disapproves.*

Don't abandon reason

"Fighting Occultists with Consumer Advocacy" (*SI*, Fall 1989 "Forum") ought to be recognized as opposing the principles CSICOP stands for. Instead of reasoned argument, presentation of proof, and the scientific method, we are told it's necessary to get the public "outraged." Why? Because "scientific arguments rarely dissuade people from frequenting occultists." And, "objecting to paranormal claims on the basis of scientific principles does not generally sway people." The remedy is to arouse strong anger by telling the public they are being cheated by "unregulated" and "unaccredited" practitioners. I suppose we will know we are being successful when an angry mob burns down the home of an astrologer and hangs her from the post outside.

It's probably true that most people do not accept arguments based on scientific method and that they tend to prefer irrational but appealing practices to valid but dull ones. Is this a justification to abandon reasoned persuasion?

Rinehart S. Potts
School and Public Librarianship
Glassboro State College
Glassboro, N.J.

For entertainment only

I applaud your efforts to label horoscope columns in the media as entertainment, not fact.

I recently picked up a copy of *Novascope*, a Northern Virginia regional magazine, and found that their horoscope column (called "The Black Hole Biscuit") bears the following legend: "The Black Hole Biscuit brings you advice from deep space. The Biscuit's spacey advice comes to you with only a modicum of validity. Predictions are iffy, people are changeable, and the stars are pretty far away. The Biscuit takes a flier the first of every month. Run your sign up the pole—it might fly."

This message clearly communicates "For entertainment only," but does so in an entertaining way. I encourage you to follow *Novascope's* example and not insist on a caption that reads like a Surgeon General's warning.

Thomas D. Fuller
Alexandria, Va.

On Crowley and backmasking

In regard to the letters in the Fall 1989 issue, I *never* have stated or intimated that either Aleister Crowley or Jimmy Page was satanic. I am puzzled as to how David Godwin reached the conclusions he sets forth in his letter.

The reason I began studying the "backward messages" phenomenon was my abhorrence for the claims made on this topic on religious talk-shows. Barry Mraz, the genius recording engineer behind the first eight Styx albums, sent me a tape of a PTL show aired in 1982 in which Paul Crouch, Jr., was discussing "backmasking." As I mentioned in my previous letter, I was surprised to find a *few* recording artists had attempted to produce forward/backward lyrics. The two recordings of particular interest were "Stairway to Heaven" by Led Zeppelin and E.L.O.'s "Eldorado."

Although I found forward/backward segments in these and a few other songs targeted by California Assemblyman Phil Wyman during the 1982 hearings. I actually defended the music industry by submitting lengthy written testimony to legal counsel Jay DeFuria of the California Assembly, in which I discussed the absurdity of a recording labeling bill. I argued that there would be no way to monitor questionable backward speech and that it would be an infringement of artistic freedom.

In the same year, I ran across Aleister Crowley's comments on page 417 of *Magic in Theory and Practice*. I went on record in print and on radio and TV talk-shows and discussed Crowley's comments and Jimmy Page's known obsession with him. Some of the information I received came from people in the recording industry who know Page. Jimmy owns the largest collection of Crowley memorabilia, purchased Crowley's Scottish mansion, and named his occult bookstore in London after Aleister's journal, *The Equinox*. It should come as no great surprise that Jimmy Page and Robert Plant would attempt a forward/backward song in the finest of Crowleyian tradition. As for Godwin's apparent upset about my claim that doing things backward has long been associated with ceremonial magic, I suggest he consider "ridicule rituals" like the Black Mass. . . .

Charles J. Phelan asserts that my research did not include Crowley or ceremonial magic. Again, this reader did not bother to read the papers I have written that were listed at the end of my letter. Crowley was indeed all those wonderful things mentioned by Phelan. However, I chose the term *occultist* because that hat seemed to fit this topic. I never have stated that Crowley's reversing exercising had anything to do with subliminal messages. Backward utterances do not constitute subliminal messages. I only stated that Page was undoubtedly influenced by Crowley's exercises enough to write a song that could be intelligible if played in reverse. I have absolutely no idea whether Page or Plant or any other performers actually believe backward messages can be subconsciously perceived.

Finally, regarding Charles Clifton's letter, there are too many recognizable phrases on the reverse play of "Stairway to Heaven" to be coincidental. These phrases are the result of careful slurring and are not readily apparent on the live version of the song. This suggests that many studio takes were necessary for an intelligible trade-off in each direction. Speech scientist Ray Daniloff and I were able to make our own forward/backward segments, including those in "Stairway to Heaven." We inspected speech spectrograms of the segments and also their phonetic transcription and got helpful insights from phonetician Ian Catford and speech scientist George Allen. More than two years were spent in this investigation.

Michael W. Walker
Toledo, Ohio

Bar-code beast returns

I regret to inform you and your readers that Michael Keith's article, "The Bar-Code Beast" (Summer 1988), remains lamentably relevant.

On October 19, 1989, I happened upon the local Trinity Broadcasting Network channel and saw a few minutes of that evening's "Praise the Lord" program. One of the show's guests was Doug Clark, a self-described "prophecy preacher," who claimed to have received a letter from "the man who designed the UPC code"—now a born-again—containing "a complex formula" that supposedly proves that the number 666 was deliberately included as a part of the code. Unfortunately, this tall tale is firmly embedded in the minds of evangelical Christians and won't simply collapse under the weight of its own silliness.

It would be asking too much for mere facts to kill this lunatic yarn, but at least we can pull out a UPC code with a six in both halves (or at least in the first half) and start quoting Michael Keith.

Jeffrey Hukkanen
Whittier, Calif.

Channeling and delusions

Although Professor Graham Reed's article "The Psychology of Channeling" (*SI*, Summer 1989) was most enjoyable and informative, I disagree with some of his comparisons of channeling experiences and psychotic disorders.

From the clinical point of view, channelers' reports can be distinguished from delusions by the fact that pathological delusions are always idiosyncratic, that is, not shared by other persons except in so-called induced psychotic disorder. The problem in distinguishing the unusual experiences reported by channelers from the unusual experiences of psychotic persons is largely a manifestation of comparing these experiences only at a symptomatic level instead of at a phenomenological level. For example, if a person tells a psychiatrist that he or she is occupied by another person, this would not be automatically judged a delusion. Many other questions would need to be asked in an effort to understand the patient's inner experience. The experience of the psychotic person in believing that he or she is occupied by someone else or another spirit is entirely different from the experience of the channeler—unless, of course, the channeler is also psychotic.

On the same basis, I doubt that channelers often experience true auditory hallucinations. Those who consult psychiatrists frequently report hearing voices but careful questioning usually brings out that they are merely reporting vivid thoughts as "voices."

P. C. S. Hoaken, M.D.
Professor of Psychiatry
Queen's University
Kingston, Ontario
Canada

Chaos and pseud-abuse

Keith Lockett (Letters, Summer 1989) wrote that chaos theory is a likely future victim of pseud-abuse. I agree, and would like to add my prediction (channeled from my computer) about how such abuse could be manifest.

Chaos theory shows that many natural systems once thought to be random could in fact be deterministic, but effectively random because of their exquisite sensitivity to initial conditions. It is thus impossible to measure initial conditions with sufficient accuracy to predict the behavior of a chaotic system far into the future.

Intriguingly, one of the better ways of maximizing accuracy of prediction of chaotic systems is to use neural networks. These are highly interconnected networks of simple processors, modeled in silicon, mimicking the brain. If these systems can manage crude precognition, imagine what could be achieved with a net as big and powerful as that in our heads!

Nick Beard
London, England

Children's books

James Rusk (*SI*, Fall 1989) bemoaned the lack of children's books presenting a skeptical approach to pseudoscience. One excellent source is *Mysteries and Fantasies*, the 1986 supplement to Childcraft's "The How and Why Library" (Robert O. Zeleny, editor-in-chief; World Book, Inc., Chicago).

Aimed at ages five (read aloud) to twelve, this book debunks such fantasies as the Bermuda Triangle, Bigfoot, and alien visitation, including the idea that the Nazca ground pictures were landing patterns. It clearly explains in nonsexist language how scientists seek independent, verifiable evidence and the simplest explanations. Best of all, it intersperses the debunkings with real, important scientific mysteries, such as what happened to the Neanderthals and why (and whether) dinosaurs became extinct.

Mysteries and Fantasies also includes an annotated bibliography with intended age ranges. The following books (although apparently out of print) are said to present skeptical accounts: *Monsters of North America* (for ages 5 to 8), by William Wise (Putnam, 1978); *Monsters from Outer Space* (for ages 9 to 12, by William Wise (Putnam, 1979); *Strange Mysteries from Around the World* (for ages 9 to 12), by Seymour Simon (Four Winds, 1980). I have not read these, but hope that there is a SKEPTICAL

INQUIRER reader who will share an evaluation with us.

Elizabeth J. Lawlor
Riverside, Calif.

James Rusk and other *SI* readers may be interested in a new line of Prometheus books that foster a skeptical and rational viewpoint in children. The authors of three of the books are CSICOP Fellows; the books are *The Magic Detectives: Join Them in Solving Strange Mysteries* by Joe Nickell, *It's Magic* by Henry Gordon, and *The Snark Puzzle Book* by Martin Gardner. In some way, each of these books emphasizes the development of logic and critical thinking; all are delightfully illustrated and show that skepticism is important—and fun.

Look for additions to the list in the future.

Lorraine Baranski, Director
Advertising and Promotion Dept.
Prometheus Books
Buffalo, N.Y.

A set of SIs

I want to dispose of my back issues of *SI*, complete from Vol. 2, No. 2. I will appreciate and answer any letters offering to buy the set or to recommend its donation.

O. L. Beckwith
P.O. Box 89
Wharton, NJ 07885

The letters column is a forum for views on matters raised in previous issues. Please try to keep letters to 300 words or less. They should be typed, preferably double-spaced. Due to the volume of letters, not all can be published. We reserve the right to edit for space and clarity. Address them to Letters to the Editor, SKEPTICAL INQUIRER, 3025 Palo Alto Dr. NE, Albuquerque, NM 87111.

Local, Regional, and National Organizations

The organizations listed below have aims similar to those of CSICOP and work in cooperation with CSICOP but are independent and autonomous. They are not affiliated with CSICOP, and representatives of these organizations cannot speak on behalf of CSICOP.

UNITED STATES

Alabama. Alabama Skeptics, Emory Kimbrough, 3550 Watermelon Road, Apt. 29A, Northport, AL 35476.

Arizona. Tucson Skeptical Society (TUSKS), James McGaha, Chairman, 2509 N. Campbell Ave., Suite #16, Tucson, AZ 85719. Phoenix Skeptics, Michael Stackpole, Chairman, P.O. Box 62792, Phoenix, AZ 85082-2792.

California. Bay Area Skeptics, Rick Moen, Secretary, 4030 Moraga, San Francisco, CA 94122-3928. East Bay Skeptics Society, Daniel Sabsay, President, P.O. Box 20989, Oakland, CA 94620. Society for Rational Inquiry, Bob Lee, President, 1457 57th St., Sacramento, CA 95819. Southern California Skeptics, Susan Shaw, Secretary, P.O. Box 7112, Burbank, CA 91505; San Diego Coordinator, Ernie Ernissee, 5025 Mount Hay Drive, San Diego, CA 92117.

Colorado and Wyoming. Rocky Mountain Skeptics, Béla Scheiber, President, P.O. Box 7277, Boulder, CO 80306.

District of Columbia, Delaware, Maryland, and Virginia. National Capital Area Skeptics, c/o D. W. "Chip" Denman, 8006 Valley Street, Silver Spring, MD 20910.

Florida. Tampa Bay Skeptics, Gary Posner, 6219 Palma Blvd., #210, St. Petersburg, FL 33715.

Georgia. Georgia Skeptics, Keith Blanton, Vice Pres., 150 South Falcon Bluff, Alpharetta, GA 30201.

Illinois. Midwest Committee for Rational Inquiry, Ralph Blasko, Chairman, P.O. Box 977, Oak Park, IL 60303.

Indiana. Indiana Skeptics, Robert Craig, Chairperson, 5401 Hedgerow Drive, Indianapolis, IN 46226.

Kentucky. Kentucky Assn. of Science Educators and Skeptics (KASES), Chairman, Prof. Robert A. Baker, 3495 Castleton Way North, Lexington, KY 40502.

Louisiana. Baton Rouge Proponents of Rational Inquiry and Scientific Methods (BR-PRISM), Henry Murry, Chairman, P.O. Box 15594, Baton Rouge, LA 70895.

Massachusetts. Skeptical Inquirers of New England, Laurence Moss, Chairman, c/o Ho & Moss, Attorneys, 72 Kneeland St., Boston, MA 02111.

Michigan. MSU Proponents of Rational Inquiry and the Scientific Method (PRISM), Dave Marks, 221 Agriculture Hall, Michigan State Univ., East Lansing, MI 48824. Great Lakes Skeptics, Don Evans, Chairman, 6572 Helen, Garden City, MI 48135.

Minnesota. Minnesota Skeptics, Robert W. McCoy, 549 Turnpike Rd., Golden Valley, MN 55416. St. Kloud ESP Teaching Investigation Committee (SKEPTIC), Jerry Mertens, Coordinator, Psychology Dept., St. Cloud State Univ., St. Cloud, MN 56301.

Missouri. Kansas City Committee for Skeptical Inquiry, Verle Muhrer, Chairman, 2658 East 7th, Kansas City, MO 64124. Gateway Skeptics, Chairperson, Steve Best, 6943 Amherst Ave., University City, MO 63130.

New York. Finger Lakes Association for Critical Thought, Ken McCarthy, 107 Williams St., Groton, NY 13073. New York Area Skeptics (NYASk), Joel Serebin, Chairman, 160 West 96 St., Apt. 11M, New York, NY 10025-6434. Western New York Skeptics, Tim Madigan, Chairman, 3159 Bailey Ave., Buffalo, NY 14215.

North Carolina. N.C. Skeptics, Michael J. Marshall, Pres., 3318 Colony Dr., Jamestown, NC 27282.

Ohio. South Shore Skeptics, Page Stephens, Box 5083, Cleveland, OH 44101

Pennsylvania. Paranormal Investigating Committee of Pittsburgh (PICP), Richard Busch, Chairman, 5841 Morrowfield Ave., #302, Pittsburgh, PA 15217. Delaware Valley Skeptics, Brian Siano, Secretary, Apt. 1-F, 4406 Walnut St., Philadelphia, PA 19104.

South Carolina. South Carolina Committee to Investigate Paranormal Claims, John Safko, 3010 Amherst Ave., Columbia, SC 29205.

Tennessee. Tennessee Valley Skeptics, Daniel O'Ryan, Secretary, P.O. Box 50291, Knoxville, TN 37950.

Texas. Austin Society to Oppose Pseudoscience (ASTOP), Lawrence Cranberg, President, P.O. Box 3446, Austin, TX 78764. Houston Association for Scientific Thinking (HAST), Darrell Kachilla, P.O. Box 541314, Houston, TX 77254. North Texas Skeptics, Mark Meyer, Secretary and Treasurer, P.O. Box 22, Arlington, TX 76004-0022.West Texas Society to Advance Rational Thought, Co-Chairmen: George Robertson, 516 N Loop 250 W #801, Midland, TX 79705; Don Naylor, 404 N. Washington, Odessa, TX

(continued on next page)

(continued from previous page)

Texas, continued.
79761.

Washington. Northwest Skeptics, Philip Haldeman, Chairman, T.L.P.O. Box 8234, Kirkland, WA 98034.

Wisconsin. Wisconsin Committee for Rational Inquiry, Mary Beth Emmericks, Convenor, 8465 N. 51st St., Brown Deer, WI 53223.

AUSTRALIA. National: Australian Skeptics, P.O. Box E 324 St. James, NSW 2000. Regional: Australian Capital Territory, P.O. Box 555, Civic Square, 2608. New South Wales, Newcastle Skeptics. Chairperson, Colin Keay, Physics Dept., Newcastle University 2308. Queensland, 18 Noreen Street, Chapel Hill, Queensland, 4069. South Australia, P.O. Box 91, Magill, S.A., 5072. Victoria, P.O. Box 1555P, Melbourne, Vic., 3001. West Australia, 25 Headingly Road, Kalamunda, W.A., 6076.

BELGIUM. Committee Para, J. Dommanget, Chairman, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels.

CANADA. National: James E. Alcock, Chairman, Glendon College, York Univ., 2275 Bayview Avenue, Toronto, Ontario. Regional: Alberta Skeptics, Elizabeth Anderson, P.O. Box 5571, Station A, Calgary, Alberta T2H 1X9. British Columbia Skeptics, Barry Beyerstein, Chairman, Box 86103, Main PO, North Vancouver, BC, V7L 4J5. Manitoba Skeptics, Bill Henry, President, Box 92, St. Vital, Winnipeg, Man. R2M 4A5. Ontario Skeptics, Henry Gordon, Chairman, P.O. Box 505, Station Z, Toronto, Ontario M5N 2Z6. Quebec Skeptics: Jean Ouellette, C.P. 282, Repentigny Quebec, J6A 7C6.

EAST GERMANY. East German Skeptics, A. Gertler, Chairman, Inst. for Forensic Medicine, Humboldt Univ., Berlin 1040.

FINLAND. Skepsis, Matti Virtanen, Secretary, Kuismakujo 1 S 18, Helsinki 00720.

FRANCE. Comité Français pour l'Etude des Phénomènes Paranormaux, Claude Benski, Secretary-General, Merlin Gerin, RGE/A2 38050 Grenoble Cedex.

INDIA. B. Premanand, Chairman, 10, Chettipalayam Rd., Podanur 641-023 Coimbatore Tamil nadu. For other Indian organizations contact B. Premanand for details.

IRELAND. Irish Skeptics, Peter O'Hara, Contact, Dept. of Psychiatry, Airedale General Hospital, Steeton, Keighly, West Yorkshire, UK BD20 6TD.

ITALY. Comitato Italiano per il Controllo delle Affermazioni sul Paranormale, Lorenzo Montali, Secretary, Via Ozanam 3, 20129 Milano, Italy.

MEXICO. Mexican Association for Skeptical Research (SOMIE), Mario Mendez-Acosta, Chairman, Apartado Postal 19-546, Mexico 03900, D.F.

NETHERLANDS. Stichting Skepsis, Rob Nanninga, Secretary, Westerkade 20, 9718 AS Groningen.

NEW ZEALAND. New Zealand Skeptics, Warwick Don, Dept. of Zoology, Univ. of Otago, Dunedin, NZ.

NORWAY. NIFCO, K. Stenodegard, P.O. Box 2119, N-7001, Trondheim. Skepsis, Terje Emberland, Contact, P. B. 2943 Toyen 0608, Oslo 6.

SOUTH AFRICA. Assn. for the Rational Investigation of the Paranormal (ARIP), Marian Laserson, Secretary, 4 Wales St., Sandringham 2192.

SPAIN. Alternativa Racional a las Pseudosciencias (ARP), Luis Alfonso Gámez Domínguez, c/o el Almirante A. Gaztañeta, 1-5º D. 48012 Bilbao.

SWEDEN. Vetenskap och folkbildning (Science and People's Education), Sven Ove Hansson, Secretary, Sulite Imavägen 15, S-161 33 Bromma.

SWITZERLAND. Conradin M. Beeli, Convenor, Mühlemattstr. 20, CH-8903 Birmensdorf.

UNITED KINGDOM. SKEPTICAL INQUIRER Representative, Michael J. Hutchinson, 10 Crescent View, Loughton, Essex LG10 4PZ. British & Irish Skeptic Magazine, Editors, Toby Howard and Steve Donnelly, 49 Whitegate Park, Flixton, Manchester M31 3LN. London Student Skeptics, Michael Howgate, President, 71 Hoppers Rd., Winchmore Hill, London N21 3LP. Manchester Skeptics, Toby Howard, 49 Whitegate Park, Flixton, Manchester M31 3LN. Wessex Skeptics, Robin Allen, Dept. of Physics, Southampton University, Highfield, Southampton S09 5NH. West Country Skeptics, David Fisher, Convenor, 27 Elderberry Rd., Cardiff CF3 3RG, Wales.

WEST GERMANY. Society for the Scientific Investigation of Para-Science (GWUP), Amardeo Sarma, Convenor, Postfach 1222, D-6101 Rossdorf.

The Committee for the Scientific Investigation of Claims of the Paranormal

Paul Kurtz, Chairman

Scientific and Technical Consultants (partial list)

William Sims Bainbridge, professor of sociology, Illinois State University. **Gary Bauslaugh,** dean of technical and academic education and professor of chemistry, Malaspina College, Nanaimo, British Columbia, Canada. **Richard E. Berendzen,** professor of astronomy, president, American University, Washington, D.C. **Barry L. Beyerstein,** professor of psychology, Simon Fraser University, Burnaby, British Columbia, Canada. **Martin Bridgstock,** lecturer, School of Science, Griffith Observatory, Brisbane, Australia. **Vern Bullough,** dean of natural and social sciences, SUNY College at Buffalo. **Richard Busch,** magician, Pittsburgh, Pa. **Shawn Carlson,** physicist, Berkeley, Calif. **Charles J. Cazeau,** geologist, Tempe, Arizona. **Ronald J. Crowley,** professor of physics, California State University, Fullerton. **J. Dath,** professor of engineering, Ecole Royale Militaire, Brussels, Belgium. **Felix Ares De Blas,** professor of computer science, University of Basque, San Sebastian, Spain. **Sid Deutsch,** professor of bioengineering, Tel Aviv University, Israel. **J. Dommanget,** astronomer, Royale Observatory, Brussels, Belgium. **Natham J. Duker,** assistant professor of pathology, Temple University. **Barbara Eisenstadt,** educator, Scotia, N.Y. **Frederic A. Friedel,** philosopher, Hamburg, West Germany. **Robert E. Funk,** anthropologist, New York State Museum & Science Service. **Sylvio Garattini,** director, Mario Negri Pharmacology Institute, Milan, Italy. **Laurie Godfrey,** anthropologist, University of Massachusetts. **Gerald Goldin,** mathematician, Rutgers University, New Jersey. **Donald Goldsmith,** astronomer; president, Interstellar Media. **Clyde F. Herreid,** professor of biology, SUNY, Buffalo. **William Jarvis,** chairman, Public Health Service, Loma Linda University, California. **I. W. Kelly,** professor of psychology, University of Saskatchewan. **Richard H. Lange,** chief of nuclear medicine, Ellis Hospital, Schenectady, New York. **Gerald A. Larue,** professor of biblical history and archaeology, University of So. California. **Bernard J. Leikind,** staff scientist, GA Technologies Inc., San Diego. **Jeff Mayhew,** computer consultant, Aloha, Oregon. **Joel A. Moskowitz,** director of medical psychiatry, Calabasas Mental Health Services, Los Angeles. **Robert B. Painter,** professor of microbiology, School of Medicine, University of California. **John W. Patterson,** professor of materials science and engineering, Iowa State University. **Steven Pinker,** assistant professor of psychology, MIT. **James Pomerantz,** professor of psychology, Rice University; **Daisie Radner,** professor of philosophy, SUNY, Buffalo. **Michael Radner,** professor of philosophy, McMaster University, Hamilton, Ontario, Canada. **Robert H. Romer,** professor of physics, Amherst College. **Milton A. Rothman,** physicist, Philadelphia, Pa. **Karl Sabbagh,** journalist, Richmond, Surrey, England. **Robert J. Samp,** assistant professor of education and medicine, University of Wisconsin-Madison. **Steven D. Schafersman,** geologist, Houston. **Chris Scott,** statistician, London, England. **Stuart D. Scott, Jr.,** associate professor of anthropology, SUNY, Buffalo. **Al Seckel,** physicist, Pasadena, Calif. **Erwin M. Segal,** professor of psychology, SUNY, Buffalo. **Elie A. Shneour,** biochemist; director, Biosystems Research Institute, La Jolla, California. **Steven N. Shore,** New Mexico Institute of Mining and Technology, Socorro, N.M. **Barry Singer,** psychologist, Eugene, Oregon. **Mark Slovak,** astronomer, University of Wisconsin-Madison. **Douglas Stalker,** associate professor of philosophy, University of Delaware. **Gordon Stein,** physiologist, author; editor of the *American Rationalist*. **Waclaw Szybalski,** professor, McArdle Laboratory, University of Wisconsin-Madison. **Ernest H. Taves,** psychoanalyst, Cambridge, Massachusetts. **Sarah G. Thomason,** professor of linguistics, University of Pittsburgh, editor of *Language*.

Subcommittees

Astrology Subcommittee: Chairman, I. W. Kelly, Dept. of Educational Psychology, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0, Canada.

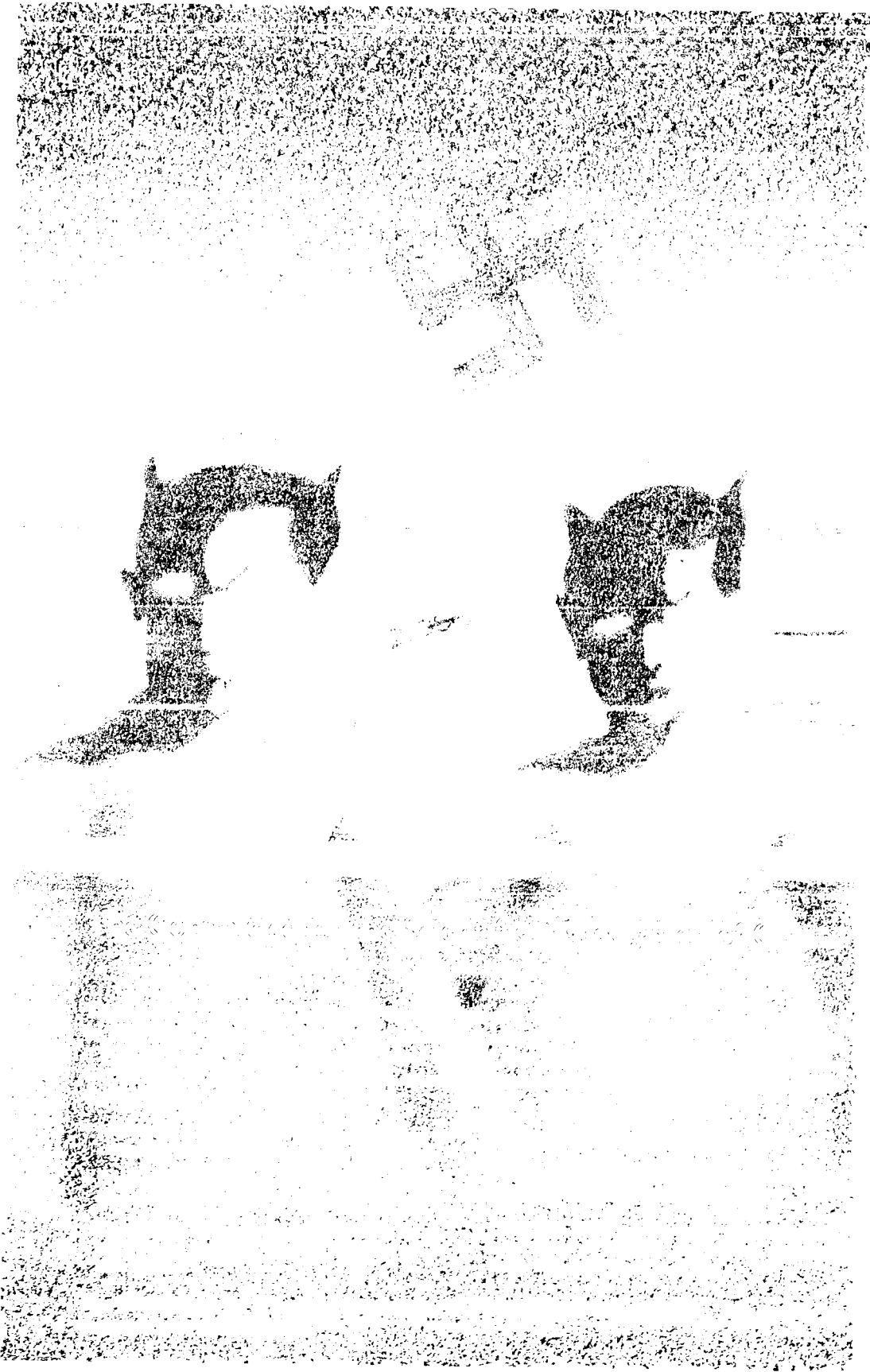
College and University Lecture Series Subcommittee: Chairman, Paul Kurtz; Lecture Coordinator; Ranjit Sandhu, CSICOP, Box 229, Buffalo, NY 14215-0229.

Education Subcommittee: Chairman, Steven Hoffmaster, Physics Dept., Gonzaga Univ., Spokane, WA 99258-0001; Secretary, Wayne Rowe, Education Dept., Univ. of Oklahoma, 820 Van Vleet Oval, Norman, OK 73019.

Electronics Communications Subcommittee: Chairman, Barry Beyerstein, Dept. of Psychology, Simon Fraser Univ., Burbaby, B.C. V5A 1S6 Canada; Secretary, Page Stevens, Box 5083, Cleveland, OH 44101.

Legal and Consumer Protection Subcommittee: Chairman, Mark Plummer, c/o CSICOP, Box 229, Buffalo, NY 14215-0229.

Paranormal Health Claims Subcommittee: Co-chairmen, William Jarvis, Professor of Health Education, Dept. of Preventive Medicine, Loma Linda University, Loma Linda, CA 93350, and Stephen Barrett, M.D., P.O. Box 1747, Allentown, PA 18105.

Parapsychology Subcommittee: Chairman, Ray Hyman, Psychology Dept., Univ. of Oregon, Eugene, OR 97402.

UFO Subcommittee: Chairman, Philip J. Klass, 404 "N" Street S.W., Washington, D.C. 20024.